UNIVERSITI MALAYA

WXES 3182:PROJEK ILMIAH TAHAP AKHIR II
Online Health & Beauty Web Site
(V-Nuz.com)

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SESI 2002/2003

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ABSTRACT

V-Nuz.com is a Health & Beauty On-line System, mainly focus on women's needs. This system is approached because Health & Beauty supplies are information-intensive products, mostly nonperishable, easy and cheap to ship, and generate lots of repeat purchases. The main focus of this system is to create awareness regarding women health and provide substantial information on women lifestyle today's. This system include online transaction such as search capabilities, product catalog user registration and administrator site.

The main challenge of this project is to develop an online system that will be informative as well as attractive enough to set it apart from the current web sites on the Internet.

V-Nuz.com is developed with a combination of web programming technologies namely Active Server Page, VBScript, HTML and JavaScript. The entire platform for V-Nuz.com requires Windows 9x machine and Microsoft Internet Explorer 4.0 and above.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank God for giving me the strength and patience to developed the proposed system. All my effort on this project development are for His glory and not my own.

Next, I would like to extend my sincere appreciation and immense gratitude to Pn. Sri Devi for taking me under her wing. I feel blessed to have her as my mentor for her guidance and tutelage on the concepts of this project development has been invaluable and irreplaceable. Without her encouragement, guidance, support and patience, I would not have the confidence to express my opinions, ideas, and suggestions to the responsibility in hand.

My next heartfelt thanks goes to my moderator, Mr. Teh Ying Wah, for his patience and positive criticism which enabled me to work out my flaws in my work and help me to produce better achievements and improve my judgment in the real working environment. The suggestion, ideas and reference he provided are very thoughtful and useful throughout the development of the Health & Beauty System.

Last but not least, I would like to express my heartfelt appreciation to my family especially to my father, En. Faharudin b. M. Hassan for his love, patience and guidance all these years and my mother, Pn. Fardah bt. Mohamed for being there from the beginning to the end. Not to forget of course to all my friends who been with me through thick and thin and let me see the humor of the world of what we called REALITY.

Thank You So Much…

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CHAPTER 1:INTRODUCTION

1.0) OVERVIEW

In recent years, the number of people accessing the World Wide Web has increased beyond expectation all manner of users, from the casual surfer to the professional can avail themselves of this vast information resource within health and beauty products and information resource being prominent. The Internet is seen as a new medium for the dissemination of health and beauty related information, having the potential to reach a global audience. The online Health & Beauty boom will be driven by women, particularly young women who are flocking to the Internet and now outnumbered men both as surfers and online shoppers.

1.1) PROBLEM DOMAIN

- Security concern- security is on much higher risk level on the internet.
- Customer concerned that information about them will be sold to other company & spammers when they purchase online.
- Lack of confidence in customer service, customer uncertain to purchase product online.
- Consumer resistant to change and are uncomfortable viewing merchandise on a computer.

1.2) OBJECTIVE

- To understand the needs & requirement of an E-commerce web info-structure implementation.
- Analyze several powerful E-commerce web sites to understand the secret of its success and implement this secret in the prototype.
- Develop an online web-based system that promotes latest information and tips on Health & Beauty.
- To provide interactive module for customer.
- To make the web site as informative as possible, like an on-line women magazine that focus on their lifestyle and daily needs.
- To create awareness regarding women health and provide substantial information on women lifestyle today's.
- To maximize full potential of the ability to attract users by the user interface.

1.3) SCOPE

Due to a few limitations, such as time, cost and knowledge constraints, the scope of this project will be narrowed down to only consider the following points.

Generally the V-Nuz system will be on two sections, which are;

- Customer
- Administrator

The customer section is a series of web pages that will allow customer from browsing the contents of the web site to searching the product catalog and adding items to their shopping cart. Basically, it will provide the following facilities:

- An on-line catalog, customer login, new customer registration, search capabilities, links to other related sites, Health & Beauty article.
- Allow customer to browse V-Nuz web site contents, as member or non-member.
- Include simulation of a shopping cart that allows customers to manipulate the ordered product in her shopping cart.

Administrator section will allow admin to have access to the administrative site and maintain the database on-line. Facilities provided in this section include:

- Administrator login
- Edit/update product
- Delete product
- Search product

The target groups to use this system are women who use the Internet as a tool to get information and tips on health & beauty.

The proposed system is hoped to give an impact on the following business and computer system functions:

1. **Marketing**
    - To add value to the customer
2. **Awareness**
    - To create awareness regarding women health and provide substantial information on women lifestyle today's.

3. **Multimedia Interactivity**

   - To maximize full potential of the ability to attract users by the user interface.

4. **Reliability and availability of system**

   - To achieve a system that is reachable at all times and stabile

1.4) PROJECT SCHEDULE

Project scheduling is playing a vital role for developer. It helps to determine how deep the analysis has to be done. The project schedule for V-Nuz Health & Beauty Web Site is shown below:

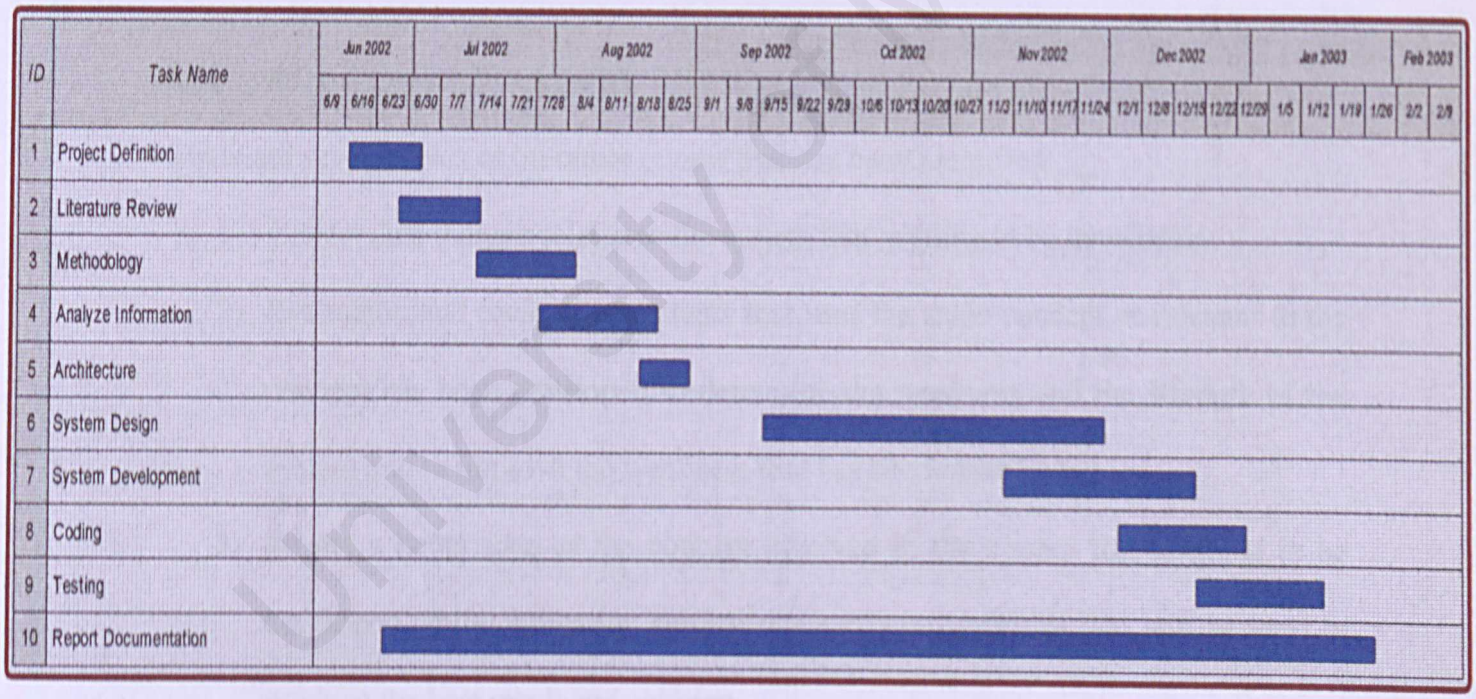

Figure 1.1: Gantt Chart for Project Development Plan

CHAPTER 2:LITERATURE REVIEW

2.1) INTRODUCTION

A write up on a literature review for this project proposal is considered an important stage for the prior steps in developing the proposed system. This is where identification of the elements needed is done to comprehend the yet-to be-developed business information system, which enables understanding of the strengths, weakness, opportunities, threats, potentiality and issues surrounding the proposed system. Literature review is the fundamental background information of developing a reliable and comprehensive system which from here will be the basis to begin the methodology and system analysis for the online health & beauty e-commerce web site.

2.2) ROLE OF LITERATURE REVIEW

There are several roles of literature review that has been identified:

1) Collect data that are related to the system that is going to be developed.
2) Evaluation and reviews of systems that uses the same concept or relevant to the concept has been developed to determine the weakness and the strength of the system and to improve the weakness that has been identified.
3) To get a better idea of the concept involved in the system that is going to be developed while comparing several other existing software that will be used to produce the best result and solution.

2.2.1) Electronic Commerce

Few technologies have enjoyed as rapid acceptance as the Internet. Internet technologies are changing the rules by which business are conducted. Internet technologies are also changing the fundamental technical architecture on which many organizations are building their internal information systems. Most organizations are using the same technologies to build a private internal network called intranet. And many organizations are using the same technologies to build secure, business-to-business networks called extranets. These technology shifts are driving a significant business trend, electronic commerce.

Electronic commerce (e-commerce or EC) involves conducting both internal and external business over the Internet, intranet, and extranet. Electronic commerce includes the buying and selling of goods and service, the transfer of fund, and the simplication of day-to-day business processes – all through digital communications.(Whitten et al, 2000)

There are three basic types of electronic- commerce-enabled applications:

- Marketing of corporate image, products, and services is the simplest form of electronic commerce application. Most business have achieved this level of electronic commerce in which the World Wide Web is used merely to "inform" customers about products, service and policies.
- Business–to–Consumer (B2C) electronic commerce attempts to offer new, Web-based channels of distribution for traditional products and service. The typical

customer can research, order, pay for products directly via the Internet. Example include Amazon.com (for books and music) and E-trade.com(for stock and bonds) Both companies are examples of businesses created on the Web. Their competition, however, includes traditional businesses that have added Web-based electronic commerce front ends as an alternative consumer option (such as Barnes and noble and Merril Lynch)

- Business-to-Business (B2B) electronic commerce is the real future! This is the most complex form of electronic commerce and could ultimately evolve into electronic business – the complete paperless and digital processing of virtually all business transactions that occur within and between businesses.

The transition to Web-based information systems and electronic commerce will take several years; especially in Malaysia, however no business, large or small, will be immune from the transition and an economy based on Internet technology.

2.2.2) E-Commerce in Malaysia

Although e-commerce has flourished in developed countries such as United Kingdom and United States, the same cannot be said for our homeland. E-commerce is still at its embryonic stage in Malaysia. According to a source from lelong.com, Malaysians and Asians in general, are still not ready to embrace online shopping. The number of Malaysia companies involved in e-commerce is still not too encouraging.

According to the Energy, Communication and Multimedia Minister, Datuk Amar Leo Moggie global figures showed that by 2003, web-generated revenue was expected to

increase to US$1.23 trillion (RM4.67 trillion), while in Malaysia, the e-commerce market was expected to generate revenues exceeding US$1 billion (RM$3.8 billion) by the same year.

As such, the Malaysian government has strived to provide all possible means of encouraging the usage of the Internet as a powerful business tools. The MSC, the e-commerce and k-economy (knowledge economy) master plans, low Internet connection cost and cyber laws are among the initiative taken by our government to further promote e-commerce in Malaysia. Even the education system in Malaysia has been revised to include computer related studies into the student co-curricular activities in hope of installing computer literacy among the future generation of Malaysia.

2.2.3) Review on On-line Consumer

Regardless of age, rapid electronic and technical advances are making all consumers more sophisticated and knowledgeable buyers. As "Web World" unfolds today's prevalent marketing concepts simply will not work. Consumer armed with online information not only rejects but ridicule most advertising, dismissing it as hype and rejecting overstatement or hypocrisy. They rebuff any idea that a salesperson might invade their territory, either by knocking on their door, calling on the phone, sending unsolicited junk mail or e-mail "spasm," cluttering Web sites with blinking banner ads or trying to sell them anything.

Consequently, it takes a much stronger message to gain consumer attention and hence , interactive multimedia Web sites will dominate the retail environment. Of course, a quality product that meets a personal need literally sells itself.

2.2.4) What makes consumer shop on-line

Teenagers always offer a glimpse of the future. And today's teens view shopping as an experience. For them, a "cool" brand must exhibit certain characteristics, quality being given. The overriding purchase motivation is simply to have fun.

So what makes shoppers shop online? by nature, consumers want things to be simple, easy and fast. Evidence shows that Web users clearly see everyday tasks as easier and more convenient when done online.

Major reasons given by e-consumers for shopping online is that it saves time, saves fuel and parking fee, the stores open 24hours, and there are no crowds. It makes purchasing online much more fun. They get fast navigation, fast checkout, fast delivery fast exchanges and fast help. They are surprising glad to avoid unattractive brick-and-mortar stores and their product-ignorant, indifferent, and rude sales clerks not to forget long queue.

The preference for online shopping clearly improves substantially after the browsers has made her first online buy. Indeed, after that first purchase, research shows that customers are at least 5 times more likely to buy again online than they were before their first purchase.

Whether they shop offline or online, consumer are easily "ticked off" or "clicked off" by less than outstanding customer service. Of course, the major source of satisfaction for brick-and-mortar shoppers is the immediate gratification that stems from buying an item and taking it home. However online shoppers say that they too enjoy immediate purchase gratification thanks to the certain of next-morning delivery. E-buyers expect convenient, in-depth product info, customized offerings, instant confirmation, and round-the-clock customer service. Overall, consumers simply want to do things on their on terms. And the web's ability to customize and personalize the shopping experience is appealing to customers of all age and types.

2.2.5) Gender Review: Women Shopper

There are now more woman online than men- 52 percent at the end of 1999, versus only 5 percent in 1994. As well, women did 56 percent of online shopping in full-year 1999, with this rising to nearly 70% over the year-end holiday season. Significantly, women either make or influence some 80% of all household purchase. Hence, women will utterly dominate e-shopping during the next decade and they by far represent the best e-marketing opportunity of the Millennium.

Moreover, women have the spending power. With such purchasing power, the increase in women e-shoppers signals a sea change in what products will sell well online.

Men and women. Being quit different, are known to have contrasting shopping styles. While it is risky to generalize, the conventional wisdom is that men quickly spot what they want to buy and buy it; women like to browse and to examine the product before

they buy. Quite naturally, male-female differences also show up among Internet users and online shoppers. Men tend to use search engine to find information while women tend to have a specific task or objective in mind; there go more directly to Web sites and are more likely to use page links than search engine to gather information. Women focus on fewer web sites than men and spend less time there. Hence, a woman's loyalty to sites on her "favorites" list is very strong.

Women thus are turning to Web not only for the kind of information they traditionally got from magazine but to gain a sense of community- from sites such as iVillage.com- and to shop. The figure below illustrated the iVillage.com women's web site.

Figure 2.1:iVillage Web Site

However, women still browse much longer than men before they buy, spending more time online. Women also tend to hop around their favorite Web sites during a single online session- among health, lifestyle, beauty and shopping interests.

Women have reached the point where they're had time to experiment and are ready to shop. However, because women tend to enjoy traditional shopping more than men, they view e-shopping as a chance to do what they already enjoy. More demanding of personal attention, women however are more likely to react positively to gift ideas or suggestion that help them solve problems quickly and seamlessly. Wanting simplicity, service, control, convenience and empowerment in the form of personalization and customization, they also prefer personalized shopping sites and respond better to personal Web experience.(Feather,2000)

2.2.6) Existing System Review

The purpose of this review is to guide the development of the proposed V-Nuz e-commerce system where the requirement and function for the existing system are identified. Next, to include the good features in the web site design, studying the strength of the existing system does it.

Here is a system review of available e-commerce and Health & Beauty web sites found worldwide.

1) Shopping-Cart Technology (Amazon.com)

One of the most commonly used e-commerce enablers is the shopping cart. This order-processing technology allows customers to accumulate items they wish to buy as they continue to shop.

The most widely recognized example of an e-business that uses shopping-cart technology is Amazon.com. Amazon.com uses a database on the server side that allows customers on the client-side to search for product in a variety of ways. This is an example of a client/server application.

The Amazon database consists of product specifications, availability, shipping information, stock levels, on-order information and other data. This extensive database makes it possible to cross-reference products. The Amazon.com web site is illustrated in the screen shot below.

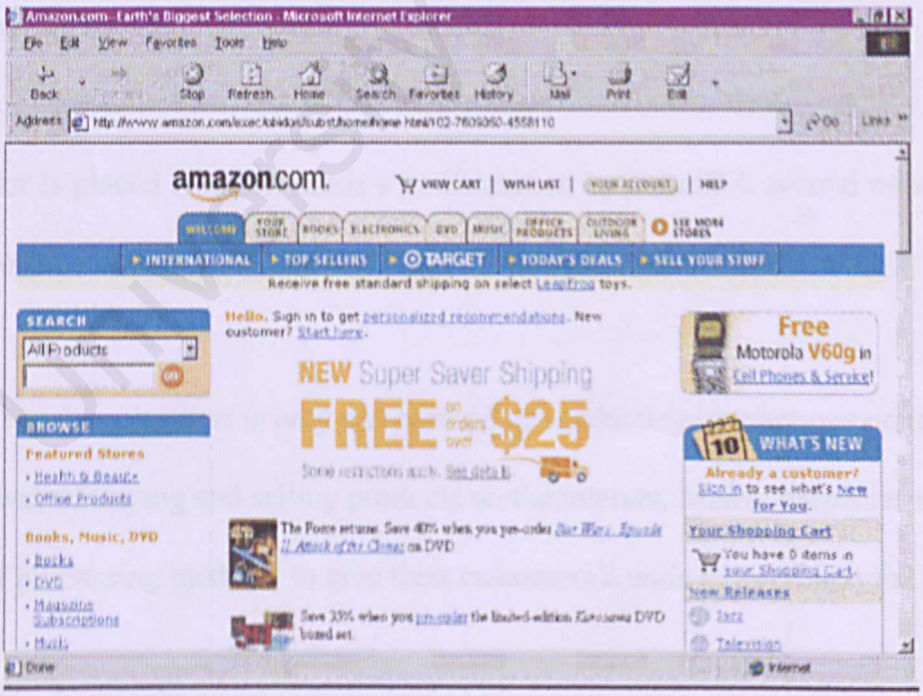

Figure 2.2: Amazon.com merchant retail site

Amazon.com personalizes its site to service returning customers; a database keeps a record of all transactions. Amazon searches the customer database for patterns and trends among its clientele to provide personalized service that would otherwise need to be handled by sales representatives. Amazon's computer system drives sales of additional items without human interaction (Deitel *et al*,2001) meaning they have no physical shop.

The shopping-cart technology in Amazon processes the information for the purchase item and displays a list of the products that had been placed in the shopping cart. There are also options to change the quantity of each item, remove an item from the shopping cart, check out or continue shopping.

Customers returning to Amazon can use its 1-Click[sm] system that allows the customer to reuse previously entered payment and shipping information to place an order with just one click of the mouse.

When order is placed Amazon sends a confirmation by e-mail. A second e-mail is sent when the order is shipped. A database monitors the status of all shipments.

Although the shopping-cart is only one method of conducting transactions online, it is an effective way of buying and selling products on the internet. Many companies combine a number of purchasing methods to give their customers a wide array of options. (Deitel *et al*, 2001)

2) Health & Beauty Web Site

Many patients now seek help in cyberspace. About one-third of online health users are retrieving doctor-related information. Many users go to web sites such as MediConsult.com where they pay a sizable fee for each online consultation. In response American Medical Association (AMA) has signed up with several thousand doctors for a YourMD service on the Medem site this provides physicians with a customized web page, secure email connections with patients and colleagues, patient-education materials, and the newest information related to their medical specialties.

WebMD.com features online chats with experts, message boards, medical updates, a medical library and drug reference guide and the ability to customize the site to keep consumer informed on specific illness.

Online pharmacies offer advantages such as convenience, in the form of no waiting at prescription counters plus home delivery; and the privacy of at-home delivery. Example of e-pharmacy web site are PlanetRx., Drugstore.com and Soma.com. Visitor to PlanetRX find a wide array of health-related products and valuable information. Drugstore.com's clean Web site has well-organized tabs that make it easy to find products, and its "Solutions" tab is especially helpful and informative. The best e-pharmacy set up by a brick-and-mortar drug store is CVScom (formerly Soma.com). it has the true look and feel of a real-world pharmacy, including a virtual "Pharmacy Counter"

Cosmetics sites particularly appeal to a younger, tech-savvy consumer who is pressed for time. In categories such as cosmetics, skincare and hair care, Reflect.com customers can choose everything from the package to the scent and color of the product. It also personalizes beauty by providing a service, not just a product. Eve.com provide customer with advice from leading experts in makeup, hair, fragrance, skincare, bath and aromatherapy products as all kinds of accessories.

2.3) MONEY AND PAYMENT SYSTEMS

Although electronic payment systems have enjoyed longstanding use by large businesses and financial service organizations to displace high-value transactions, traditional payment systems have utilized cash to effect low-value, high-volume transactions. This is because electronic payment systems have been too costly to use for low-value transactions. However, advances in telecommunications and computer technologies now make electronic commerce viable for small businesses and individuals Furthermore, the rapid growth of the Internet and online services, the deployment of convenient point-of-sale payment systems, and the readily available system of automated teller machines all set the stage for broad- scale electronic commerce. Once security is established on the Internet, the necessity for using costly private networks and leased lines for even large-value transactions arguably is eliminated.

2.3.1) Current Online Payment Techniques

The most common online payment and has the widest coverage is the use of credit cards. A merchant account is required to accept credit cards. A merchant account is a special

account with a bank that is a member of the Visa and MasterCard associations. Such a bank has been certified by Visa and MasterCard associations and can provide the merchant, with all of the services related to the merchant account.

Once the merchant account is setup and "live" on the credit card system, the merchant can accept credit cards from customers generally as follows:

A customer presents their credit card for payment. Using their credit card number, the merchant submits an electronic request to the processing network for "authorization to capture funds" from the cardholder's credit card account in the amount of the purchase. Traditionally, one would submit this request by swiping a credit card through an electronic transaction terminal provided by the bank. With the system, this request is provided electronically to our payment gateway servers, which then route the request along the processing network.

The processing network immediately receives the merchant's electronic request and determines if the cardholder's account is valid and if the funds are available. If they are, the processing network returns an electronic response to the merchant's terminal or computer. This response is called an "authorization code", and is the merchant's guaranteed authorization to capture the funds. Typically, this code is a six-digit number. The transaction and its associated authorization are stored in a "batch", where other transactions for that day reside. The merchant's print a receipt for the customer using the electronic terminal or the merchant's computer and the customer signs the receipt. As far as the customer is concerned, the transaction is complete. As far as the merchant are concerned, there is one more step to complete the transaction.

At the end of your business day (usually), a final request is submitted to the processing network to go ahead and "capture the funds" that the merchant obtained authorizations for during the course of business that day. This is called "settlement" or "settling your batch". With a traditional physical credit card swipe terminal, this settlement process must be initiated manually. One of the key advantages of the system is that this settlement process is initiated automatically every day on their end. At settlement time, the processing network immediately receives the merchant's response electronically and determines if the capture amounts contained in the merchant's request match the authorizations for each item. If so, the request is granted and an "Accepted" response is returned to the merchant's electronic terminal or computer. A settlement report can be printed showing the grand totals by card type (Visa, MasterCard, American Express, Discover, etc) for the settled batch. Note: any corrections to your batch, such as voiding a transaction, must be made prior to settlement.

Within 48 to 72 hours (usually), the funds associated with the batch the merchant settled are deposited electronically into the merchant's business bank account. Typically, the discount rate the merchant's pay to the merchant account provider are deducted from the deposit before it transferred to the merchant's bank account, resulting in a "net deposit" of funds. At the end of the month, the merchant account provider will mail a statement to the merchant, detailing the credit card activity for the month and the associated fees have been charged for such. The customer also receives a monthly statement from his/her bank of the detailing credit card activity.

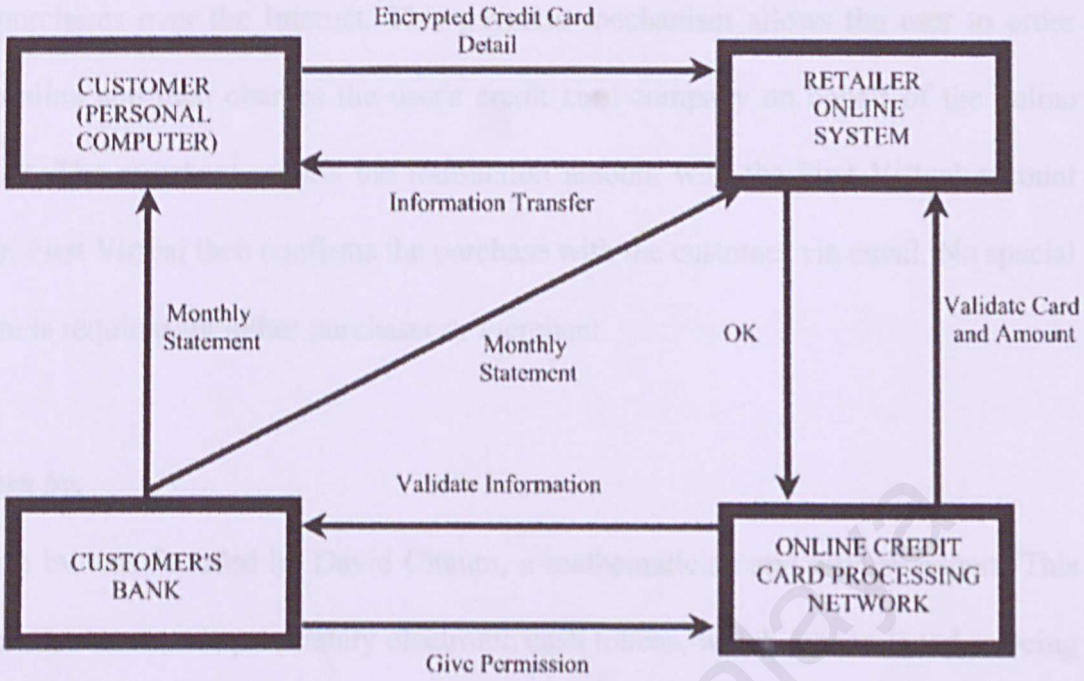

Figure 2.1: Illustrates the online credit card transaction

2.3.2) Emerging Online Payment Technologies

There are many emerging electronic payment technologies that are attempting to automate small-value retail payments and to provide secure methods for making payments over communication channels, such as the Internet. There are features of these mechanisms that present additional issues, primarily with respect to privacy and transnational regulation:

First Virtual

The account is set up by phone using a traditional credit card number and a First Virtual account number is issued. Clients provide their credit card numbers to First Virtual over

the phone or other non-Internet method, and are issued a personal account number to make purchases over the Internet. This payment mechanism allows the user to order goods online and then charges the user's credit card company on behalf of the online merchant. The merchant reports the transaction amount with the First Virtual account number. First Virtual then confirms the purchase with the customer via email. No special software is required for either purchaser or merchant.

DigiCash bv.

DigiCash bv was founded by David Chaum, a mathematician and privacy expert. This provider creates *e-cash*, proprietary electronic cash tokens, which are marketed as being the equivalent of cash. An account is established at a DigiCash-licensed bank with real money. Once established, the customer can withdraw *e-cash* that is stored on the user computer's hard drive. Using proprietary software, *e-cash* can be spent with an Internet merchant or with anyone else whose computer is set up to deal in *e-cash*. Using public-key cryptography, the digital tokens are said to be secure and can be registered and verified by the issuer without revealing to whom it was originally issued. In effect, these digital cash transactions are capable of being as anonymous as cash. No transaction confirmations are necessary, meaning the merchant can immediately ship the product.

CyberCash

This payment mechanism consists of a downloadable software package using public-key encryption that is designed to assure the security of credit card transactions over the Internet. The system protects the customer's authentication data and provides non repudiability. An account is set up and acts as an Internet front end to any existing credit card that is designated. When a purchase is made, proprietary software is used that sends

the purchase and account information in encrypted form to the account provider. The provider in turn sends the information to the appropriate financial organization for processing.

NetCash

This concept is similar to *e-cash*, except that it does not require any special software to use. NetCash is transmitted across the Internet using an encryption scheme known as PGP (pretty good privacy). To get NetCash, a party must send a check or money order to the company's headquarters. The company returns electronic coupons via e-mail.

Mondex.

Mondex is owned by Master Card and National Westminster Bank of London and is being tested in several countries. Mondex uses a smart card to store electronic cash which can be used to pay for goods and services in the same way as cash but with some key benefits over traditional cash. This provides the portability and network independence of physical coins. Future intentions include using modified telephones, ATMs, and other devices to transfer value from a bank account to a smart card.

NetChex. This payment mechanism is similar to CyberCash for checking accounts

2.3.3) Emerging Online Payment Technologies In Malaysia

Credit card Payment has always been the reigning payment method in the Internet but e-merchants do not only have a narrower consumer base, they are also taking a higher risk.

"According to Gartner Group, 12 percent of all online credit card transactions in the U.S. are credit card fraud and reaches the amount of $200 million last year," said Andrea Poon, Vice President of Marketing and Business Process Planning of the emerging online company New Paradigm. Poon added most e-merchants providing credit card payment are charged with a higher percentage transaction fee. Despite increasing their operational cost, e-merchants are still not protected from credit fraud. Since the cost is so high, many e-merchants are actually looking for a new payment method.

New Paradigm is expected to solve these problems with its e-wallet systems. The e-wallet is a prepaid card, which consumers can purchase in various offline stores. Consumers can then make their online purchase by activating the prepaid card and registering an account. When the money is used up, consumers can recharge their accounts by buying a new card. Since the purchases are done through their prepaid account, the system supports different Internet access platforms.

" A wallet does not only hold cash but also coupons and membership or discount cards. The e-wallet acts just like the same way," said Frank Lai, president and chief executive officer of New Paradigm. E-merchants can provide coupons and discounts through the system and allow consumer to use them their prepaid credit. This is more toward a comprehensive system by linking payment with discounts system where helps e-merchants build strong customer loyalty.

This payment method is particularly good for mass transactions and low purchase price items," said Lai. He explained products like course materials and comics are particularly

suitable for this system. As most comics readers do not have credit cards and the transaction is a small value purchase, the prepaid system is a more cost effective payment method for these e-merchants. "Publishers can also produce on demand for the printed versions, which allow them to control production cost more easily," said Lai."With our innovative stored-value card payment technology, e-merchants can now reach consumers who don't have credit card, including the under sixteen's market and those who feel insecure about the security of online credit card transactions," said Lai. (Griffin & Ebert ,1999)

The company was established early this year, and spent the last six months developing a proprietary ASP platform and software application instead of partnering with software companies to deliver shrink-wrapped applications over the Web. The system provides real-time coupon management services, integrated online and offline e-loyalty programs and administration services that can either be deployed separately or together. At the core of New Paradigm's platform is a specially designed e-Wallet that is provide for every customer. The e-Wallet is stored in the system's back-end server, and can be accessed via the Web, WAP, and supports future 3G networks.

Another emerging online payment transaction that is becoming in Malaysia is Internet Banking. The current trend in the electronic revolution which has set in motion the Malaysian banking sector inevitably appears to be Internet banking. The advent of Internet banking offers banking firms a new frontier of opportunities and challenges. Despite these possibilities, there are various psychological and behavioral issues such as trust, security of Internet transactions, reluctance to change, and preference for human

interface which appear to impede the growth of Internet banking. Consequently, the action taken by bankers and policy makers in appropriately addressing these critical issues will determine the success of Internet banking.

Advances in telecommunications and information technology then culminated in banks offering their services through personal computers located at the customer's premises through the use of Intranet proprietary software. However, it is interesting to note that PC-banking or desktop banking was mainly popular among banks' corporate customers rather than their retail customers.

Finally, on June 1, 2000, the Malaysian Central Bank gave the green light for locally owned commercial banks to offer Internet banking services. On June 15, 2000, Maybank, the largest domestic bank in terms of assets as well as network distribution which commands its own portal at www.maybank2U.com became the first bank to offer Internet banking services in Malaysia. This service is currently provided to individual customers of the bank and the site boasts of the latest 128-bit encryption technology to allay fears of security among consumers. The services provided in this portal includes banking enquiry functions, bill payment, credit card payment, funds transfer, and accounts summary as well as transaction history. Customer support service is provided via e-mails as well as via telephone lines and is available daily from 6 am to 12 mid-night.(Maybank,2002)

Much has been written on the factors affecting adoption or usage of new products and services. Some of the major psychological and behavioral factors which affect the

adoption of any new innovation such as Internet banking includes, consumer awareness, ease of use, security, accessibility, techno phobia or simply reluctance to change, preference for personalized services and cost of adopting the innovation.

2.4) RESEARCH OUTCOME

One of the reason why I choose to develop a Health & Beauty E-commerce Site is it supplies are a natural e-tailer category since they are information- intensive products, mostly nonperishable, easy and cheap to ship, and generate lots of repeat purchases. Indeed, healthcare is a larger online business than books and music, and e-pharmacies carry huge selections of everything from aspirin to Zantacs. And , unlike at the corner drugstore, when u shop online nobody else sees what u buy.

Beside being natural e-tailer, most consumer nowadays already search for health information on the Internet- a number that is growing by 30 percent a year – and half of them say they will buy health products online. the most consumer searching for health related issue are women because they make most healthcare decisions within a family.(Feather,2000)

Now Malaysian increasingly shows self-reliance in maintaining their physical and mental well-being. Knowledgeable consumers usually make better lifestyles and healthcare decisions and do play a much active role in their self-care. So, health and beauty a playing a vital role in today's lifestyle.

CHAPTER 3: METHODOLOGY

3.1) INTRODUCTION

A methodology is the physical implementation of the logical life cycle that incorporates step by step activities for each phase, individual and group roles to be played in each activity, deliverables and quality standards for each activity, tools and techniques to be used for each activity. The methodology ensures that a consistent, reproducible approach is applied to this system.

This chapter explores thoroughly the concepts and issues discussed in the literature review and used to the best advantage for analyzing information to design an e-commerce web site. This section focuses on my own private findings and analysis for the development of this project.

A methodology is a way of doing things. The objective of a methodology includes the following: (Sellappan,2000a)

1. Record accurately the requirements for an information system.
2. Provide a systematic method of development so that progress can be monitored.
3. Provide an appropriate time limit and an acceptable budget.
4. Produce a system that is well documented and easy to maintain.
5. Provide an indication of needed changes as early as possible in the development process.
6. Provide a system that is user-friendly

3.2) FACT FINDING TECHNIQUE

The technique below is being used to gain an in-depth understanding of the system and asses its strengths and weakness in meeting current and future requirements. (Sellappan,2000a)

Technique use for analysis:-

3.2.1) Bookstores

- several renowned bookstores, such as Popular and Minerva, contain relevant references about this project. Suitable reference books here been purchased in order to learn in detail about the technology used in this project. Examples of books use for reference:-
    a) e-Business & e-Commerce How To Program
    b) Electronic Commerce
    c) Dreamweaver Ultradev 4
    d) Software Engineering

3.2.2) Document Room

- previous seniors thesis have been read through in order to gain an overall understanding of the purpose of a thesis. The general structure of each thesis has also been observed to find out the steps taken in carrying out a thesis.

3.2.3) Internet surfing

- the internet has been the main source of information for this project. Trusted web sites have been visited and researches of Web Authors have been evaluated to obtain reliable information for analysis.

3.2.4) Library

- books, journals, and magazines from the library have been read through and valuable information has been noted down

3.2.5) Newspaper

- articles from daily newspapers about the related field of study for this project have been collected for further references.

3.3) SYSTEM DEVELOPMENT LIFE CYCLE

3.3.1) Introduction

System development is a complex but a well-defined process. It is usually done in several stages – preliminary investigation, analysis and requirements capture, design, implementation and maintenance. The term system development life cycle (SDLC) is often used to describe these stages(Sellappan,2000b). Figure 3.1 illustrates the system development life cycle.(Sellappan,2000a)

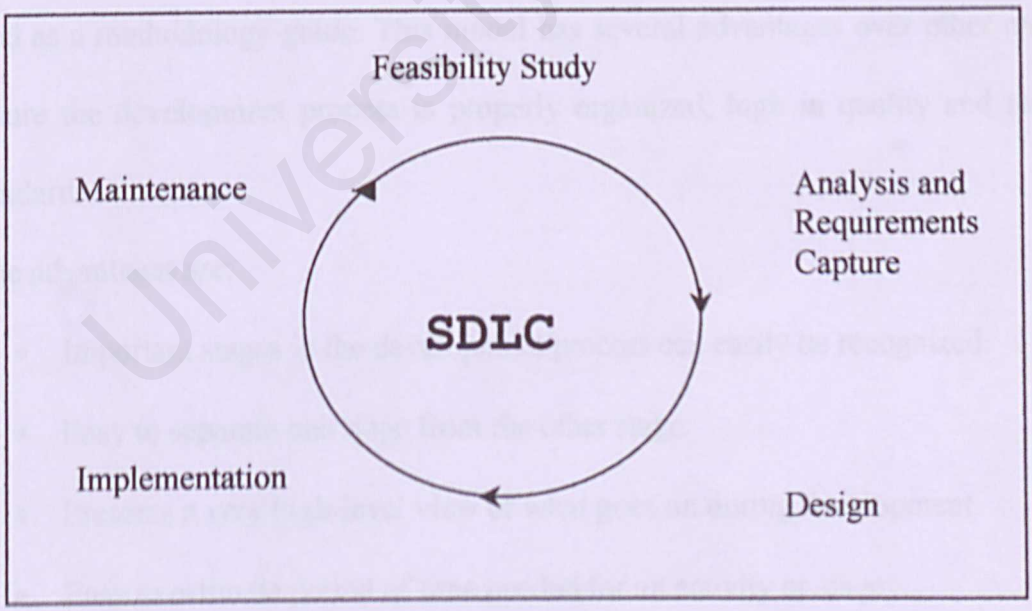

Figure 3.1 : System Development Life Cycle

3.3.2) Software Process Model

Software engineering is important in organizing and executing the development of a system. Systematic analysis using *System Development Life Cycle* is a standard methodology to ensure the development process fulfills all the required aspects. The proper sequence of developing a system is called a life cycle that is implemented to ensure all the individual involved in this project has the knowledge on how the system will be developed. This methodology is proven effective and it is still being used at the moment.

The development of a system using System Development Life Cycle is divided into several software process models such as the Waterfall Model, V Model, Prototyping Model, Transformational Model and other models.

This e-commerce web site will be developed using the Waterfall Model with Prototype used as a methodology guide. This model has several advantages over other models to ensure the development process is properly organized, high in quality and meets the standard.

The advantages are:

- Important stages in the development process can easily be recognized.
- Easy to separate one stage from the other stage.
- Presents a very high-level view of what goes on during development.
- Easy to estimate period of time needed for an activity or stage.

- Prototyping process is used to examine some aspect of the proposed system and decide whether it is suitable or appropriate for the finished products.
- Validation ensures that the system has implemented all of the requirements, so that each system function can be traced back to a particular requirement in the specification.
- Verification ensures that all function works correctly.

The reasons of the chosen model is because

- A good specification to begin with
- Easy to use and understand
- Systematic
- Scope of project well defined

Prototyping is a sub-process and prototype is partially developed product or a simple simulator of the actual system. This is to examine the proposed system overview on the functionalities.

The system development is done based on the 5 major phases to make the system more organized and achieve its objectives. The phases are:

- Early review Phase
- System Analysis Phase
- System Design Phase
- Coding/Programming Phase

- Testing and Execution Phase

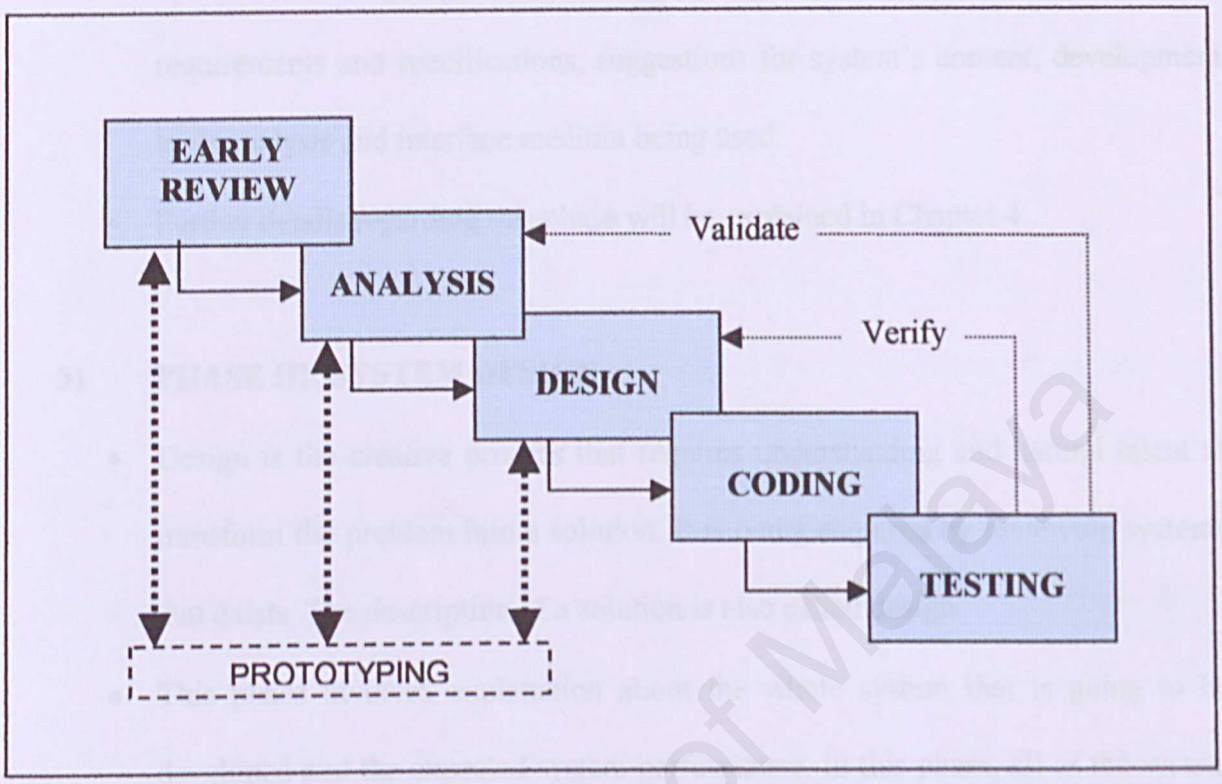

Figure 3.2 – Waterfall Model with Prototype.

1) PHASE I: EARLY REVIEW

This phase is also known as *feasibility study*. It could also be described as Investigation and Identification Phase.

- Investigation and Identification Phase

At this point, early review is being done to gather information and description on the system that is going to be develop. This phase includes the definition of the project that is objective and scope are being set for developing an e-commerce health & beauty web site. Early investigation on the existing system has been done to identify the process involved in developing the system and the problems that arise.

2) **PHASE II: SYSTEM ANALYSIS**

- The analysis phase are consist of understanding how the online Health & Beauty System that is going to be developed. It includes system review, system requirements and specifications, suggestions for system's content, development tools analysis and interface medium being used.
- Further details regarding this phase will be explained in Chapter 4.

3) **PHASE III: SYSTEM DESIGN**

- Design is the creative process that requires understanding and natural talent to transform the problem into a solution. It is being acquired by reviewing systems that exists. The description of a solution is also called design.
- This phase involves explanation about the whole system that is going to be developed and the expected system performance. In this phase, all of the system properties such as system architecture, process design and interface design are being explained. Menu design, content presentation, modules and database are parts of the properties that will be explained. This is done to simplify the interface developing process of the system that is going to be developed.

This phase is being explained in details in Chapter 5 (System Design).

4) **PHASE IV : CODING / PROGRAMMING**

- Programming is one of the most important aspects in developing a system. It will determine whether the system manage to achieve its objectives. This makes the

development environment vital in completing the programming process. All analysis and reviews had been done in details to determine the most suitable environment in achieving the project objectives. Besides all that, 3 main aspects that are being emphasis on is control structures, algorithm and data structure. This phase will be executed in WXES 3182.

5) PHASE V : TESTING AND MAINTENANCE

- Testing is to ensure that the system functions as it was suppose to. This is to detect and identify faults in the system so that all the modules developed are error-free and the system can response to request effectively.
- Testing is one of the most important elements to ensure whether the system being developed will be able to fulfill user's needs and requests. High quality system will be able to handle any type of system testing. To achieve this, all specification, design and programs done during the system development stage will be reviewed and reevaluate.
- This phase will be executed after the implementation phase or programming phase.

3.4) TOOLS

Tools are used to help simplify the system development process by automating some of the processes. Beside , they also reduce the cost and time required to develop the system. They also improve the quality of the e-commerce web site developed. The tools that are considered for the development of V-Nuz web site is divided into three category :

I. Development Platforms

II. Development Server

III. Development Software

3.4.1) Development Platforms

There are several development platforms or operating system that can be used in developing the online Health & Beauty web site-commerce system. The major operating systems that can be used for the development of this project are:(Deitel et al.,2001).

a) Unix

b) Linux

c) Macintosh

d) Windows

In this project, the development platform is Windows 98

3.4.2) Development Server

As shown in Figure 2.1 the process of displaying a dynamically generated Web page incorporates several additional steps on the part of the server. Dynamic Web page must have additional programming code embedded in the page such as Netscape's JavaScript, Microsoft VBScript, Allaire's ColdFusion Markup Language (CFML) or Sun Microsystem's Java.

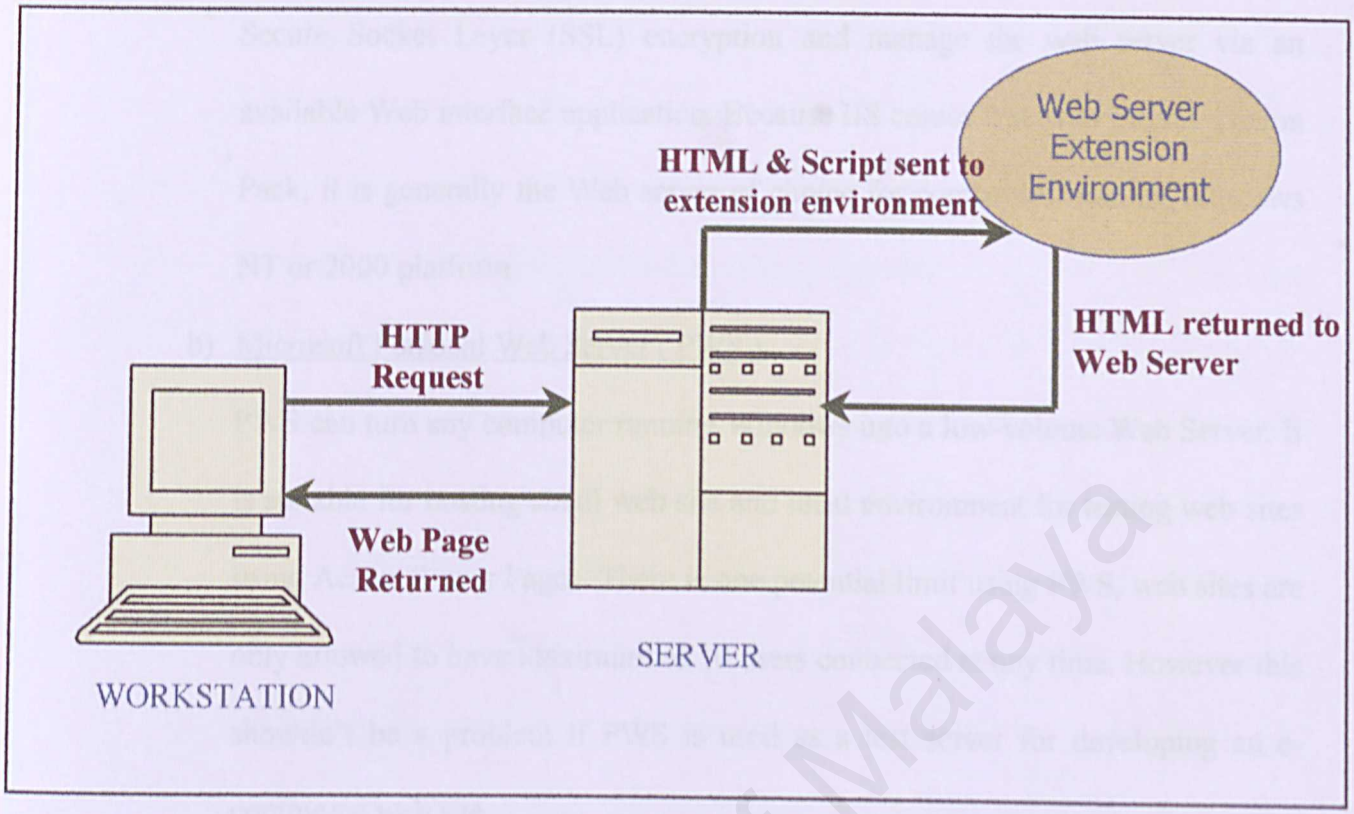

Figure 3.3: Web Server Processes

To process a dynamic Web page, the server must be equipped with either a server extension environment such as ASP or JSP, or secondary application server such as Allaire's ColdFusion Server(Nicholson,2002).

3.4.2.1) Web Server Software

In this online Health & Beauty e-commerce system, the web server software are quite variety, for instance :

a) Microsoft Internet Information Server (IIS)

IIS offers a robust environment capable of easily handling high traffic sites. It also administrator a wide variety of management features. These include the

ability to password-protect file and folder access, protect information using Secure Socket Layer (SSL) encryption and manage the web server via an available Web interface application. Because IIS comes free with the NT Option Pack, it is generally the Web server of choice for companies running Windows NT or 2000 platform.

b) Microsoft Personal Web Server (PWS)

PWS can turn any computer running Windows into a low-volume Web Server. It is suitable for hosting small web site and ideal environment for testing web sites using Active Server Pages. There is one potential limit using PWS, web sites are only allowed to have maximum of 10 users connected at any time. However this shouldn't be a problem if PWS is used as a test server for developing an e-commerce web site.

c) APACHE Web Server

For servers running on platform other than Windows, Apache Software Foundation's Apache Server is one of the fastest Web server application on the market. Apache is capable of serving ASP, JSP, and ColdFusion pages with the help of additional Web Server extension application. However, running ASP on machine running UNIX, Linux or a Mac operating system need a piece of software called Sun Chili!Soft ASP. Although UNIX and Linux are free of charge, Chili!Soft must be purchased from Chili!Soft, a subsidiary of Sun Microsystems(Nicholson,2002).

For the development of V-Nuz system, Personal Web Server is used throughout the stages of creating and on-line system. Because this is just a prototype system, PWS is suitable enough in developing the test system.

3.4.2.2) Web Server Extension Environment

a) Active Server Page (ASP)

ASP is a server-side scripting environment (meaning that the bulk of work processing the script is done by the server rather by the browser) that allows you to embed JavaScript or VBScript code into the HTML documents. ASP pages can communicate with databases, customize each visitor's web site experience through the use of cookies, and even password-protected the entire site so that visitor has to log on and be properly authenticated before gaining access(Nicholson,2002).

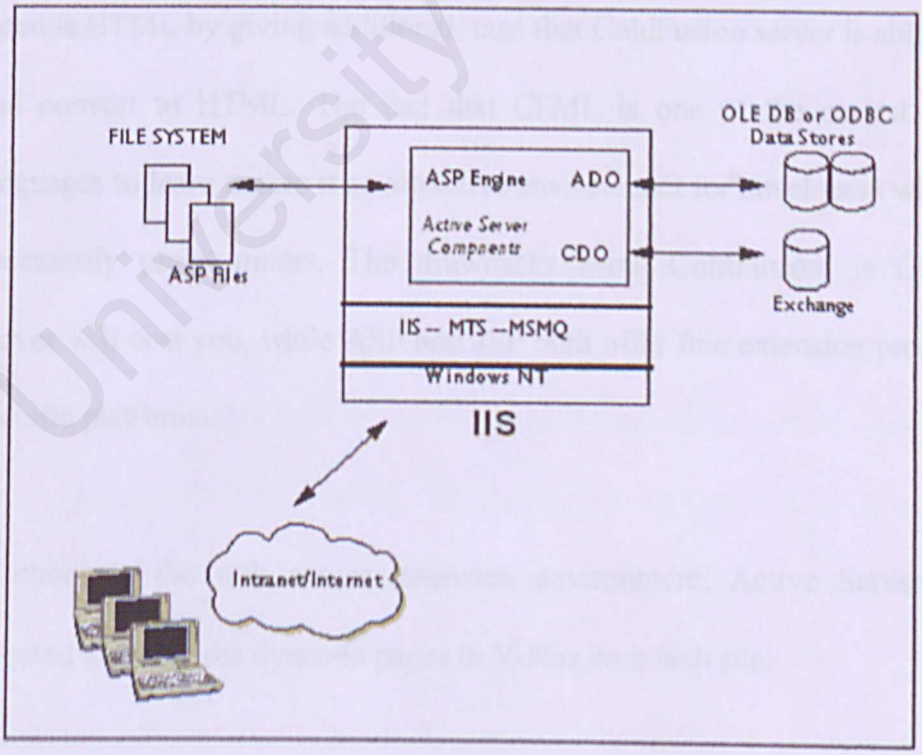

Figure 3.4:Infrastructure requirements for ASP applications

b) Java Server Pages (JSP)

The JSP environment is unique from ASP or ColdFusion in that is technology is based on Java. JSP includes a small program referred to as a *servlet.* These servlets run on the server and modify the HTML of the page before they are sent back to the browser . one of the biggest benefits running JSP, Apache Sotware Foundation and sun Microsystems are working to develop open source JSP servers that operates on any platform and are free to use(Nicholson,2002). The drawbacks, JSP relies on Java, which is a full-blown object-oriented programming language and I'm not familiar with Java.

c) ColdFusion

Allaire has developed an extension environment of its own with the creation of th ColdFusion server application and CFML. CFML is unique where it simply extends HTML by giving additional tags that ColdFusion server is able interpret and convert to HTML. The fact that CFML is one of the easiest extension languages to learn makes it an attractive environment for developers who are not necessarily programmers. The drawbacks using ColdFusion, is ColdFusion Server will cost you, while ASP and JSP both offer free extension programs for specific platforms.

In choosing the web server extension environment, Active Server Page is selected to create the dynamic pages in V-Nuz.com web site.

3.4.3) Development Software

Database Management System (DBMS)

The choice of choosing a database platform can be a big decision. In addition to the selection of database platform, I will also need to select a DBMS that allows me to build and update the Health & Beauty database. There is a wide variety of tools on the market that offer everything from inexpensive, personal databases to extremely robust, corporate-oriented tools that cost a small fortune.

a) Microsoft Access

Access is a tool that can be found on most corporate workstations as well as many home computers. The widespread of Access makes it and ideal environment for developing databases that can then be upgraded to SQL,MySQL and Oracle platforms. The viability of Access on the web, however is limited to relatively small databases.

b) Microsoft SQL Server

SQL Server provides a robust, enterprise-level DBMS capable of powering some of the largest sites on the web. But there are a couple of drawbacks, first SQL Server runs only on the Windows platform. Second, to connect the SQL server to the web, you are required to purchase one license of SQL Internet Connector. This means that as tour web site grows to require more server power, you'll continue to pay Microsoft for additional licenses.

c) MySQL

MySQL is rapidly becoming one of the most popular databases on the web for small to medium-sized web sites. This DBMS runs on any operating system and it is extremely versatile and transports easily between machines. The biggest benefit, is the fact that it is free for most use.

d) IBM DB2

IBM's client-server database, balances powerful performance and has made the transition to a PC version. One of the most powerful features is the integrated Java support, making it an ideal candidate for JSP web page environment. Although DB2 is not as expensive as Oracle, its cost still exceeds that of SQL server.

e) Oracle

Oracle provides some of the most robust security measures of any DBMS on the market. Oracle runs on most UNIX flavors and Windows platform. It also offers a wide range of DBMS choice which provide an excellent balance between speed and security. The drawback is cost and training. However, the stability, support and data protection offered by Oracle often make up for the extra money spent.

Due to the small amount of data being used in V-Nuz system, Microsoft Access is chosen. This DBMS is relatively easy to use and fast to learn especially for beginners.

3.5) SECURITY PROTOCOL

Security concerns is still the main issues keeping consumers from making online shopping a habit. To combat those fear and gain customer trust, there are several protocols that provide transaction security, such as Secure Socket Layer (SSL) and Secure Electronic Transaction™ (SET™).

3.5.1) Secure Socket Layer (SSL)

SSL protocol is a non-proprietary protocol commonly used to secure communication on the Internet and the Web. SSL is built into many Web browser and operates between the Internet's TCP/IP communication protocol and the application software.

SSL uses public-key technology and digital certificates to authenticate the server in a transaction and to protect private information as it passes from one party to another party over the Internet.

Although SSL protects information as it passed over the internet, it does not protect private information, such as credit-card numbers, once stored in the merchant's server. Hardware devices called PCI (peripheral component interconnect) cards can be installed on the Web server to secure data for an entire SSL transaction. (Deitel et al,2001)

3.5.2) Secure Electronic Transaction™ (SET™)

The SET protocol was designed specifically to protect e-commerce payment transactions. SET uses digital certificates to authenticate each party in an e-

commerce transaction. Public-key cryptography is used to secure information as it passed over the Web.

Merchants must have a digital certificate and special SET software to process transactions. Customer must have digital wallet software. It stores credit (or debit) card information for multiple cards as well as a digital certificate verifying the cardholder's identity.

In the SET protocol, the merchant never sees the client's proprietary information. Therefore, the client's credit-card number is not stored on the merchant's server, considerably reducing the risk of fraud.

The problem with SET is that it requires a special software on both the client and server side; that requirement increase transaction cost and it is also time-consuming.

CHAPTER 4:SYSTEM ANALYSIS

4.1) THE REQUIREMENTS PROCESS

A requirement is a feature of the system or a description of something the system must do in order to achieve the objectives of the system. System requirement fall into two categories:-

1) Functional Requirement
2) Non-functional Requirement

4.1.1) Functional Requirement

Functional Requirement are those requirements that the customer needs in order to do business. It also captures the tasks that the business must perform and as such it does not include implementation details. (Sellappan,2000a) The functional requirement for the proposed system are as below:-

1) Customer Login
   - this module is responsible for asking user to identify themselves to the system. User verification will be based on userID & password
2) New Customer Registration
   - this enable new user/non-member to register with the system.User are require to fill in a registration form and information will be kept in the database.

3) Administration Module

- enable administrator to edit, update and manipulate the data on the database. This function requires input for update process and the updated record will be displayed as a result.

4) Shopping Cart & Ordering Module

- once the user has register and login, they can start purchasing by selecting the desired products from the product catalog. The shopping cart keeps track of the item the customer selected to purchase and allows the customer to view items in the cart, add new item to it, or remove items from it.

5) Online Product Catalog

- this module display the information about each product: name, description, price, and photo of the product.

6) Search Capabilities

- visitor can search for a particular product using a search engine.

7) Health & Beauty Article

- This module provide visitor on health information mostly regarding women health, beauty tips, fashion, lifestyle, hippest place in town, interesting places and much more.

8) Links to other related sites

- Links to other women and health web site such as iVillage.com, Women.com, Eve.com,Drugstore.com, Quixtar.com and many more.

4.1.2) Non-Functional Requirement

Non-Functional Requirement are those requirements that are not directly needed by the business but are nevertheless important. They represent constraints place on the system.(Sellappan,2000a)

1) User Friendliness

- The web site must be user-friendly. A suitable caption and icons can help users to use and understand the system more easily. This include simple menu and simple navigation.

2) Usability

- The system should display a confirmation massage or prompt message for non-trivial processes such as deletion and data updating.

3) Efficiency

- Efficiency is a process or procedures in V-Nuz web site that can be called or accessed in an unlimited time to produce similar outcomes or outputs.

4) Universal term

- The universal term include Next, Submit, Send that are used in the web site. It must be consistent in every page to avoid confusion

5) Reusability

- The same design, code and function of the system can be reused to save a lot of development time.

6) Security

- There is an understanding that emphasis has been placed on a secure system when dealing with personal and financial information of users.

- V-Nuz e-commerce system will ensure that sensitive information will be handled in a safe and professional manner. In addition, various levels of V-Nuz web site functionality will be provided according to the user's status.

4.2) TECHNOLOGY REQUIREMENTS

System Requirements Analysis

From the data gathered for technological requirements and reviews from Chapter 3:Methodology, the decisions are made based on this research and my own familiarity of the usage of software's and available hardware's. This section discusses of the justification of the chosen softwares and other technological aspects to develop V-Nuz e-commerce web site.

4.2.1) Operating System

The chosen operating platform is Windows 98. Windows 98 is chosen primarily because the popularity of Windows and my own familiarity with Windows. Even though in the market, UNIX and LINUX are considered more efficient because the availability of this operating platforms are quite scarce and the time limit given to develop V-Nuz, it is not quite practical to learn to use an unfamiliar platform at a short period of time.

4.2.2) Web Server Extension Environment

The main reason to proposed V-Nuz web site was to use the ASP technology that have received tremendous reviews form developers and programmers. ASP is a set of software components that run on a Web server and allow Web developers to build dynamic Web pages. The advantage of ASP over static HTML Web pages is that an

ASP page is like a computer program that runs on a Web server and can calculate results, process user input, read from or write to databases and files, and insert "live" updated content every time a user browses the page (Microsoft,2002) and features is required to develop V-Nuz e-commerce site. In web development, ASP today has high market value comparing to other technologies as CGI (Common Gateway Interface) and Microsoft's main rival, Lotus Domino's Server in Malaysia and ASP is compatible with Windows 98.

4.2.3) Scripting Language

At the very least that one can say, VBscript and Javascript are very similar as for their philosophy and their operating mode. Fortunately some differences, and not of least, make two completely different tools of them

Choosing a scripting language for ASP

Active Server Pages introduced a whole new concept to web development - scripting language of the programmer's choice. Before ASP came around, the web development tools such as ColdFusion by Allaire required that the programmer know a proprietary scripting language (in the case of ColdFusion it is CFML). On the other hand there was (still is) Perl, which with packages provides access to databases and other functionality that a programmer have come to expect from a web development environment.

ASP provides a better way of doing things - it modularizes the web development effort. It gives the option of choosing your scripting language, something most other web

development tools do not offer. While there are many scripting languages around, the two most prominent are - VBScript and JavaScript.

So the question is : "What is better scripting language, VBScript or JavaScript?" In my opinion, there is no "better" scripting language. It all depends on what context you ask the question. This is the question many technical leads face, especially when working with team members with different programming backgrounds. Also, a tinge of bias seeps into this argument - many people tend to think JavaScript is the same as Java, a programming language from the "enemy camp."

All these can possibly affect what scripting language a programmer would use in his/her ASP pages. Here are some of the factor that are considered:.

1) Ease of Use

People believe VBScript is easier than JavaScript, simply because it looks like Visual Basic language. While this is true, a programmer with Java experience may think otherwise. People with no programming background may find VBScript easier to use because it is easier to understand owing to its English-like syntax. E.g. If you want to get first 2 letters in a word, do Left(someWord, 2) in VBScript, whereas in JavaScript you do someWord.substr(0,2)

There is more ASP reference material with VBScript than there is with JavaScript. JavaScript is case-sensitive and VBScript isn't. While this argument is valid, I personally feel case-sensitivity helps people understand the syntax better.

2) Features

Both scripting languages are powerful in their own right. JavaScript offers a rich set of object-oriented framework to work with - you could create classes. But with its version 5, this functionality extends to VBScript as well.

Again, sometimes people confuse power with lines of code. Just because something can be done in VBScript with one line of code when it takes three lines in JavaScript does not mean JavaScript is any less powerful. However, JavaScript and VBScript differ in some features.

Error handling

At the time of this writing, there was no error handling mechanism in JavaScript (in version 1.2, they are talking about it in 1.3). VBScript on the other hand provides a small but sufficient set of error handling capabilities.

Arrays:

Handling multi-dimensional arrays are easier in VBScript than in JavaScript. VBScript arrays can easily be dimensioned and re-dimensioned. JavaScript on the other hand provides a great feature - associate arrays, something that can easily replace dictionary objects.

Collection objects:

With VBScript, one can enumerate items in a collection using the For Each.. Next loop. This way, you avoid using an index to get the value of any item within the collection.

3) Client-side Scripting

Instead of climbing two learning curves, settle on one language for both client-side and server-side scripting. JavaScript can be a good candidate in these situations, as runs on

most browsers. VBScript, on the other hand, does not run on Netscape browsers which at this time constitute about half the browser market.

How about both?

ASP not only supports multiple scripting languages, but it lets you mix languages within a single page. For instance, you can have both JavaScript and VBScript routines on the same page. This ability, while it offers flexibility, is not all that efficient when you have a large number of pages.

4.3.4) Database Management System (DBMS)

When most of us think about database, Access often comes to mind. Similar with the explanation above, compatibility with Windows 98 is the main reasons to use Microsoft Access 2000. The widespread availability of Access makes it an ideal environment for developing database (Nicholson, 2002). Microsoft Access 2000 is also a powerful database management, which collects information related to a particular subject or purpose. A Microsoft Access database not only consists of data, fields, records, and tables but also includes those queries and reports created as a result of manipulating those fields, records, and tables. As such Microsoft Access is more than a tool used to store data — it is a complete database management system (DBMS). Additionally, the Microsoft Access 2000 DBMS can not only organize and manage a table of records (sometimes called a flat file database) but can also manage and organize many tables possessing common components into a relational database. So this database will be used according to priority for V-Nuz functions. Oracle even though is more noted but because to avoid any incompatibility, Microsoft products are still chosen.

4.2.5) Web Server Software

The web server software chosen based on the application's platform, stability and price. Personal Web Server(PWS) is being considered for developing the V-Nuz e-commerce site. It is a handy little application that can turn any computers running Windows into a low-volume Web server. It does a relatively good job hosting small web site and is an ideal environment for testing web site using Active Server Pages. PWS is quick to set up, easy to use, and free from Microsoft. This software is suitable and going to be used to test the ASP pages on my PC before publishing it to NT or 2000 server. (Nicholson,2002)

4.2.6) Web Development Tool

To developed a database-driven Web site, I considered using Macromedia Dreamweaver Ultradev 4 or better known as UltraDev. It is a combination features found in two products from Macromedia's line of Web development software: Dreamweaver and Drumbeat 2000. Whereas Dreamweaver provided the foundation for UltraDev HTML authoring capabilities, Drumbeat gave UltraDev the capability to easily connect with databases and generate dynamic Web pages on variety of platforms.(Nicholson,2002) UltraDev also enables me to connect to the Access database, view the data stored in the database and develop dynamic pages specially for each visitor. It also offers the ability to implement the enhanced security features necessary to operate an e-commerce web site.

Most importantly, the combination of UltraDev's HTML authoring tools, database connectivity features, and built-in behaviors means that the e-commerce web site can be

built by one individual rather then the culmination of efforts from a Web developer, a programmer and a database administrator

4.2.7) Multimedia Applications

User Interface is what represents a system. It is important to have an interactive and attractive web page for an e-commerce web site. Using suitable and powerful graphics tools have to be emphasized. Macromedia products such as Macromedia Flash will be used to create easy animated features for V-Nuz. For graphic editing, Microsoft Photodraw 2000 and Macromedia Fireworks will be used because of my own experience and familiarity of these software's.

4.3) SYSTEM TECHNICAL SPECIFICATION REQUIREMENTS

4.3.1) Hardware Requirements

Usually hardware refers to machinery or physical tools that perform basic functions in the process of operation cycle. Minimum specifications required to execute the Health Information System are as follows:

- CPU Processor- Intel Pentium III 450 MHz /AMD 450 MHz processor or above
- Memory- 128 Mb
- Hard Disk Space-6GB
- Internet Connection

4.3.2) Software Requirement

Decision on using the appropriate software for developing the system is important for system implementation. This is to ensure that the software's going to be used to develop this project is suitable with the concept of the project:

- Microsoft Windows 98
- Macromedia Dreamweaver Ultradev 4
- Macromedia Flash 5
- Macromedia Extension Manager
- Microsoft Access 2000
- Internet Explorer 5.0 and above
- Microsoft Active Server Pages (ASP)
- Microsoft Personal Web Server ver.4

CHAPTER 5: SYSTEM DESIGN

5.1) INTRODUCTION

Design is the creative process of transforming the problem into a solution; the description of solution is also called design. System design in an Information Technology environment context would not a complete success if there does not exist an understanding between the thinking complexities of the developer during the development of a system. This thinking complexity processes involves identifying goals, alternatives of strategic steps during processes such as design, making decisions and solving problems. When we attempt to understand the information requirements of users, we must be able to conceptualize how data moves through the system, the processes or transformation that the data undergoes, and what the outputs are.

System design is concerned with how the final system will work. It is viewed as a process that represents data structure, program structure, interface properties and procedural information. It includes processes such as below:

- Process Design
- Network Design
- Interface Design

5.2) PROCESS DESIGN

Process design describes on how modules or functions of an information system are structured (organized) and how they will interact with one another to perform the various system tasks.

5.2.1) Data Flow Diagram(DFD)

Processes in the on-line Health & Beauty E-commerce system are depicted using Data Flow Diagrams. Process design will be visualized by using Data Flow Diagram (DFD), a graphical technique used to show the flow of data through V-Nuz e-commerce system. It gives an overview of V-Nuz system's inputs, processes and outputs and shows the flow of data from the customer entity to the processes and from the processes to the destination entities (Sellappan, 2000b). As a transformer of data, the diagram shows the data flow into the system, how they are transformed and how they leave the system. The emphasis is on the flow of the data, not on the flow of control. It will also be able to view the changing process or the converting process that is being implemented to the data once the data goes into the system, through the system and out if the system.

Figure 5.1 shows the context diagram for the online Health & Beauty E-commerce System. There is only one entity for this system that is Customer. Data stores will not shown in the context diagram.

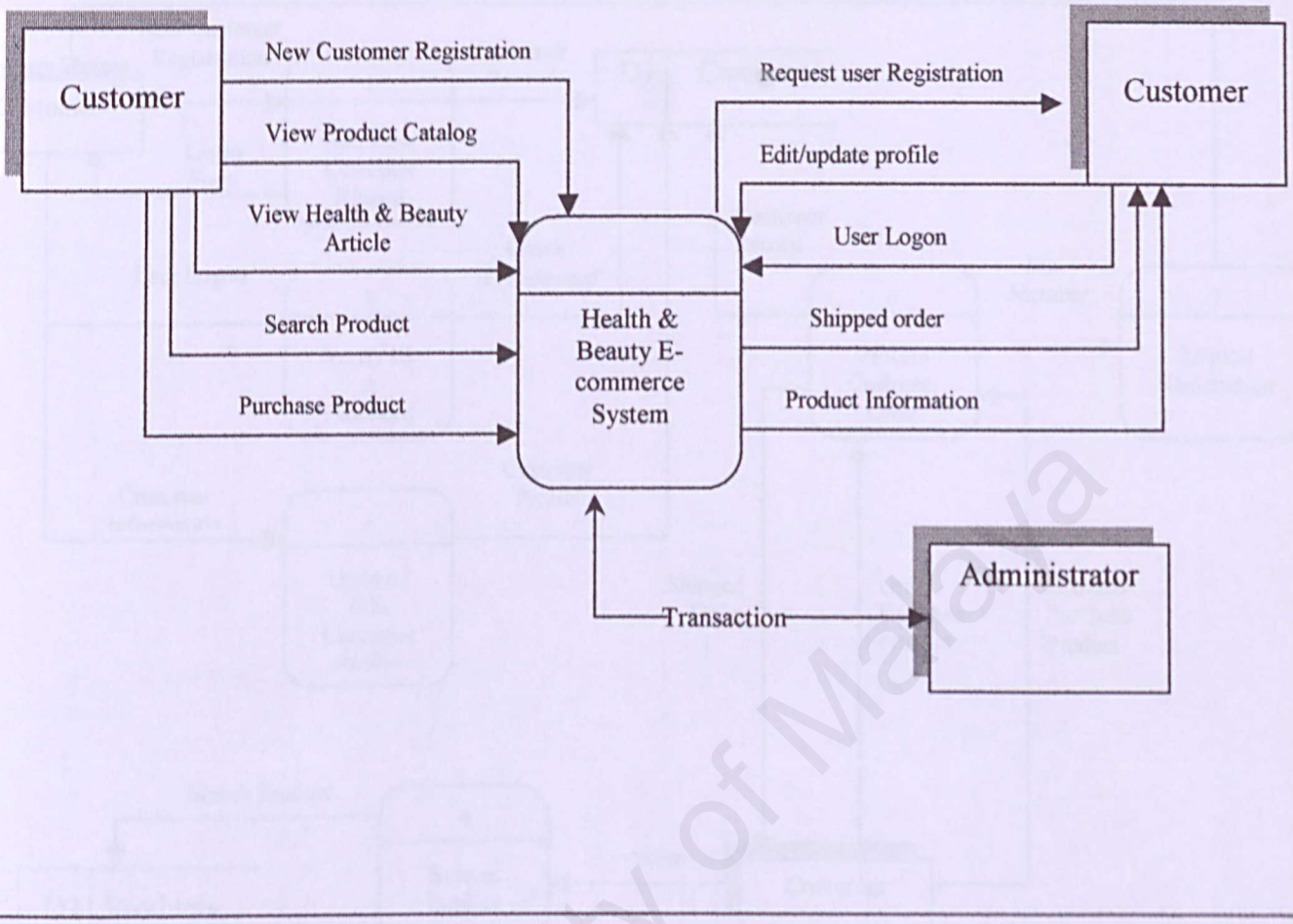

Figure 5.1:Context Diagram for Health & Beauty E-Commerce System

The diagram in Figure 5.2 is the more detailed level for the on-line Health & Beauty E-commerce system. Processes and data stores are numbered and each process may be further exploded.

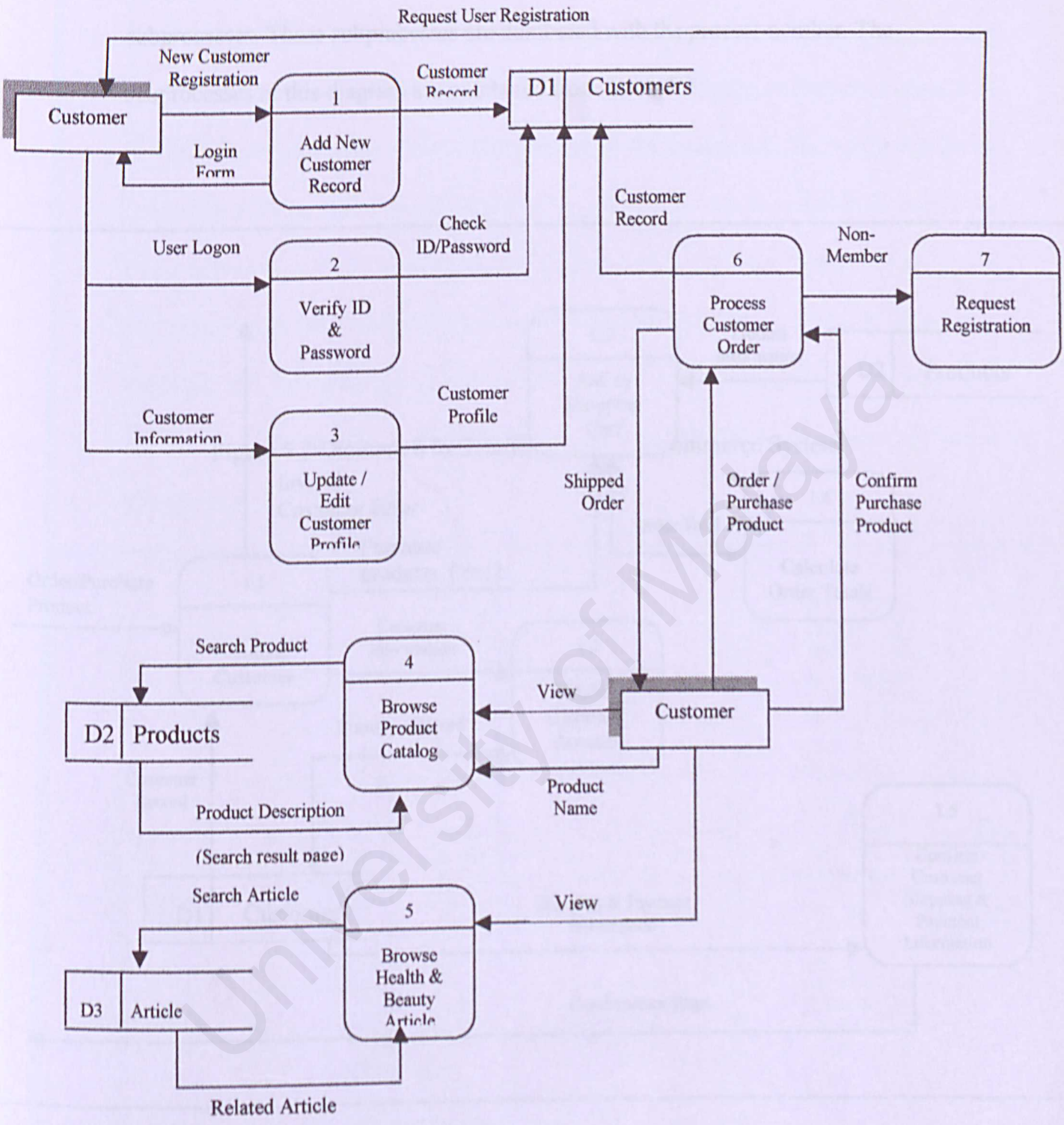

Figure 5.2:Diagram 0 for Health & Beauty E-commerce System

In the diagram below (Figure 5.3), the Process Customer Order is divided into subprocesses. These subprocesses are numbered with the process number. The subprocesses in this diagram are numbered from 1.1 to 1.5.

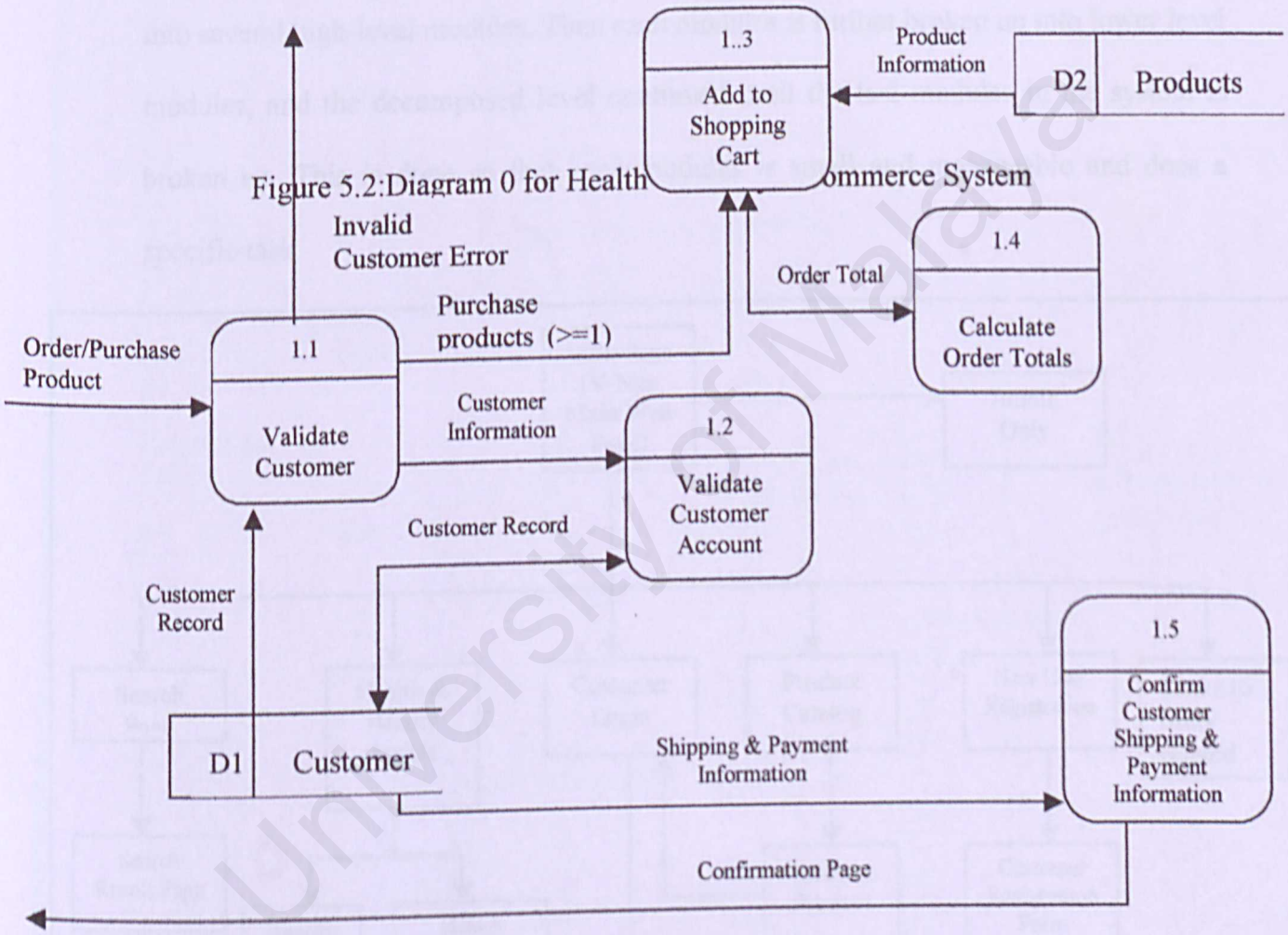

Figure 5.2:Diagram 0 for Health ommerce System

Figure 5.3: Diagram 1 Process Customer Order

5.2.2) Structure Design

Structure chart will be used to show the workflow of the Health & Beauty e-commerce Web site. Components on the higher level will represent functions that are available in the main interface display followed by the rest of the components. Typically, for the e-commerce system, one approach is being used, that is the decomposition approach. Decomposition approach is an approach where the system or application is decomposed into several high-level modules. Then each modules is further broken up into lower level modules, and the decomposed level continued until the last modules in the system is broken up. This is done so that each modules is small and manageable and does a specific task.

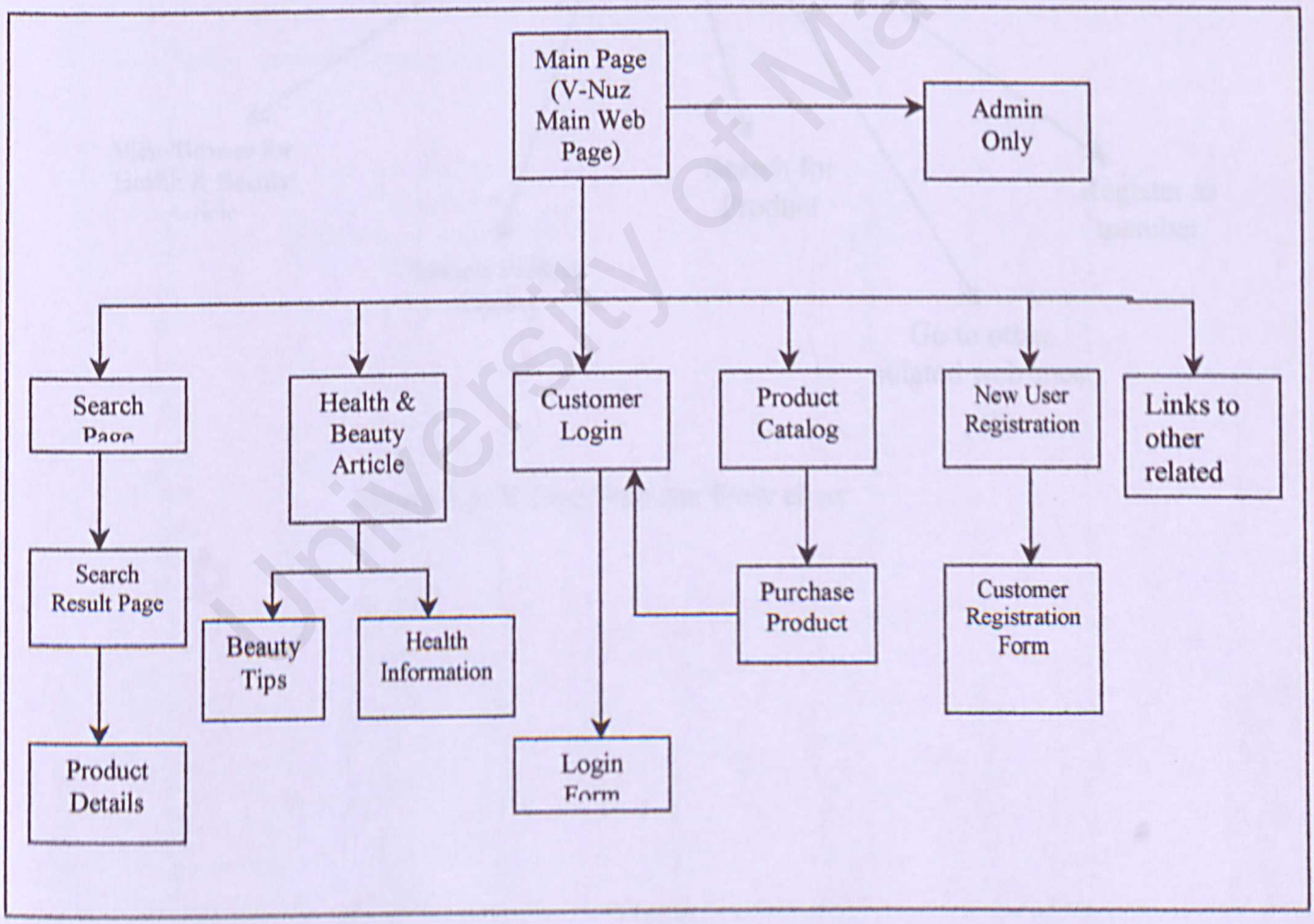

Figure 5.4: Structure chart for Health & Beauty Web Site

5.2.3) Flow Chart

The flow chart diagrams are conceptual summarizations of the processes and the conditions involved in V-Nuz Web site. The flow charts are divided into three sections: the Customer Component Flow Chart, the Employee/Staff Component Flowchart, and the Manager/Administration Flow Chart.

When a customer enter the V-Nuz Web site, they can:

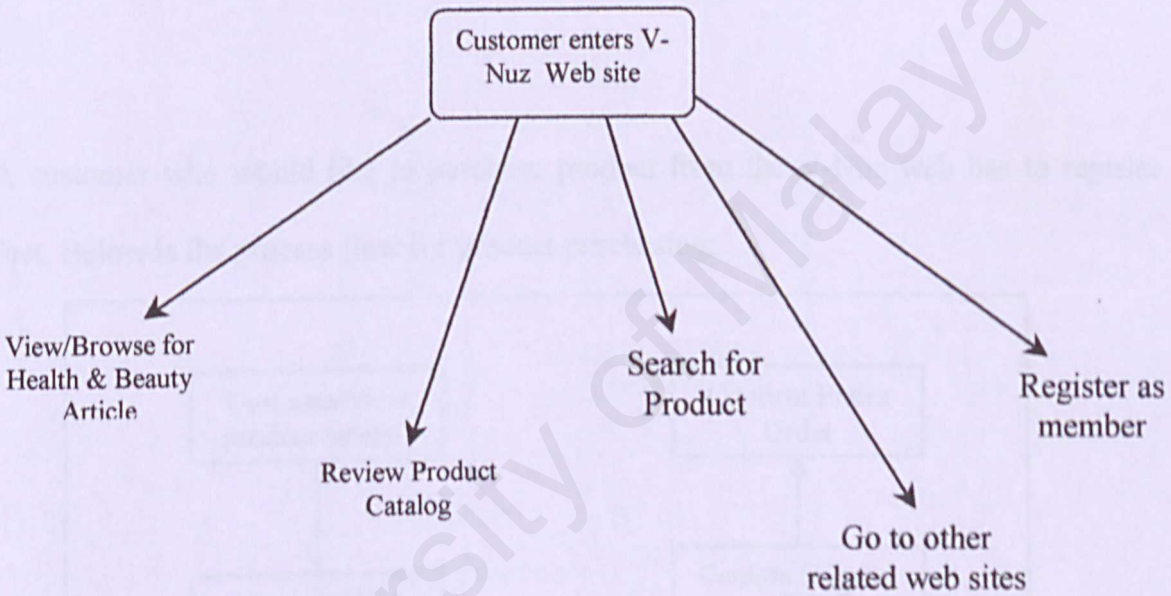

Figure 5.5: V-Nuz Web site Flow chart

For new customer registration, the process flow is as below:

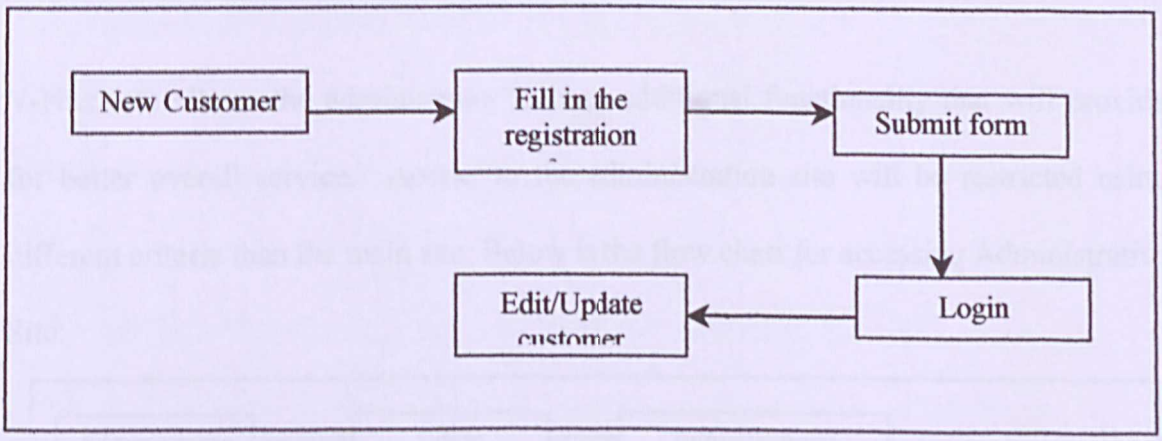

Figure 5.6: New Customer Registration Flow chart

A customer who would like to purchase product from the V-Nuz web has to register first. Below is the process flow for product purchasing:

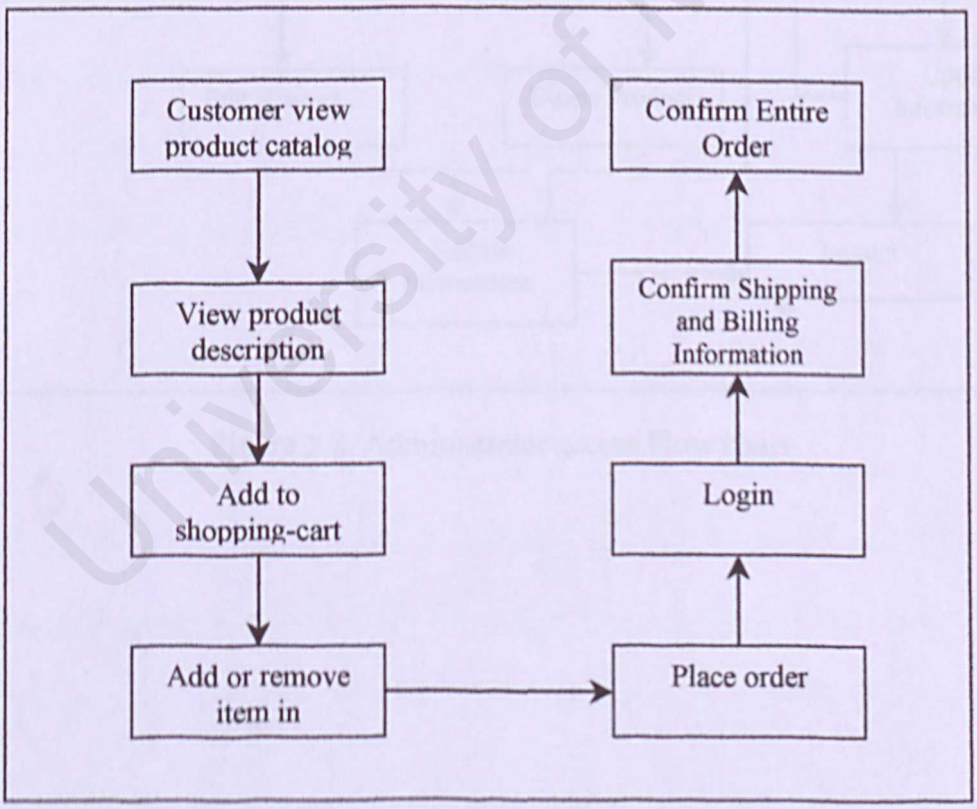

Figure 5.7: Product Purchasing Flow chart

Administrator Functionality Flow Chart

V-Nuz.com allows the administrator to have additional functionality that will provide for better overall service. Access to the administration site will be restricted using different criteria than the main site. Below is the flow chart for accessing Administrative Site:

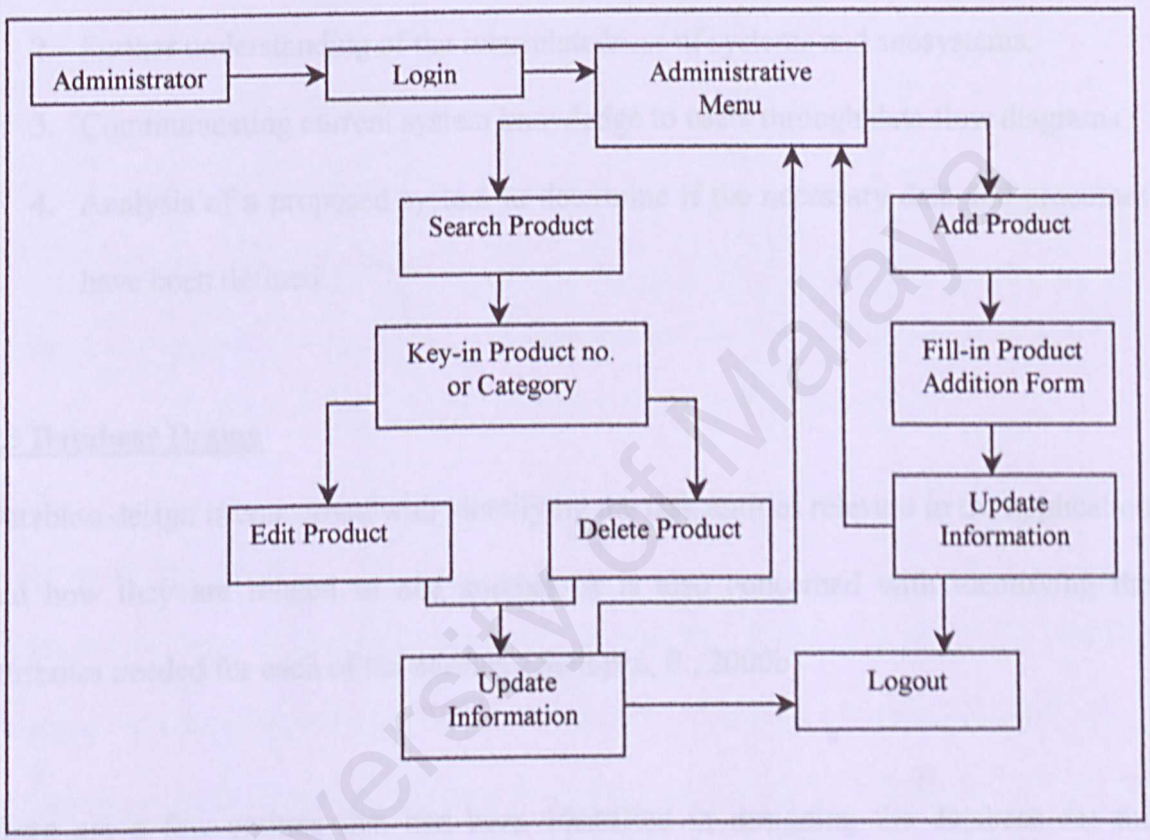

Figure 5.8: Administrator access Flow chart

Advantages of the Data Flow and Flow Chart Approach

The data flow approach has four chief advantages over narrative explanations of the way data moves through the system. The advantages are:

1. Freedom from committing to the technical implementation of the system.
2. Further understanding of the interrelatedness of systems and subsystems.
3. Communicating current system knowledge to users through data flow diagrams.
4. Analysis of a proposed system to determine if the necessary data and processes have been defined.

5.3 Database Design

Database design is concerned with identifying the task entities relevant to the application and how they are related to one another. It is also concerned with identifying the attributes needed for each of the entities. (Sellapan, P., 2000b)

There are a few entities that had been identified in designing the database for the V_Nuz.com E-commerce System. The entities are Customers, Payment, Products and Orders. Relationship is used to link the entities and attributes in each table.

Relationship ensure that redundant data is kept to a minimum by allowing storing in a field a pointer to the data in another table, rather than entering the data in both table. (Nicholson,Sean,2000). Figure 5.9 illustrates the relationship between the tables for V-Nuz database:

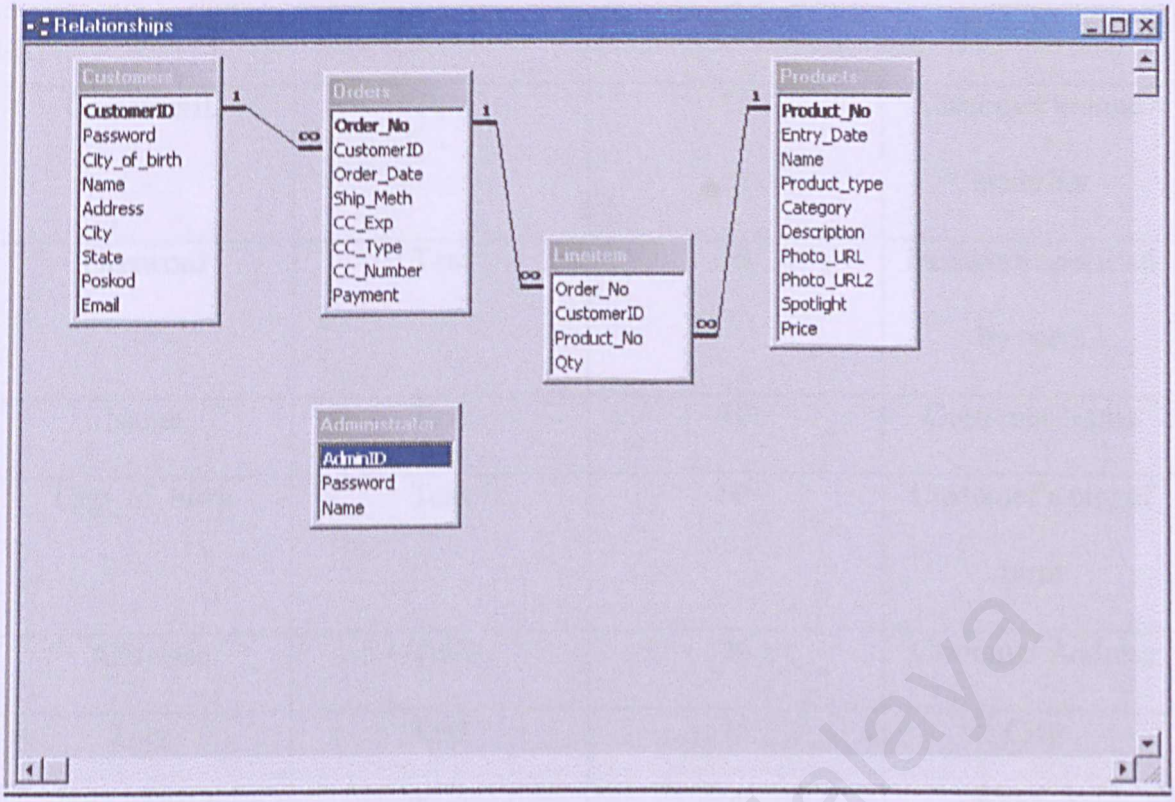

Figure 5.9: Relationship between tables in V-Nuz database

5.3.1) Database Table

Tables are the heart and soul of every database, and the functionality of V-Nuz.database is only as good as the structure of its tables. The relational database is comprised of tables that are made up of fields(columns) and records(rows). This database serve as the foundation in developing V-Nuz.com E-commerce system. The following tables will give an explanation about attribute contained in every entity.

Customers table

Customers table is comprised of information that are collected from customer ordering the V-Nuz.com products. The descriptions of each of the fields that are included in this table are as follows:

Field Name	Field Type	Size	Description
CustomerID	Text	15	Customer unique identifier
Password	Text	50	Password specified by users
Name	Text	50	Customer Name
City_of_birth	Text	50	Customer's city of birth
Address	Text	20	Customer Address
City	Text	15	City
Postcode	Text	6	Postcode
State	Text	20	State
Email	Text	50	Customer's email

Table 5.3: Customer Table

Lineitem table

This table is used to store the number of each order for each of the individual items. This table is design to give direct access to the number of times a specific product has been ordered at any given time. The fields used in this table are as follows:

Field Name	Field Type	Size	Description
Order_No.	Number	Long integer	Unique order number

Product_No.	Text	6	Product Number
CustomerID	Text	50	Customer Username
Qty	Number	Double	Product quantity ordered

Table 5.4: Item Table

Orders table

This table stores information about each order that is placed. The fields in the Orders table are as follows:

Field Name	**Field Type**	**Size**	**Description**
Order_No	Auto Number	Long Integer	Unique order number
CustomerID	Text	50	Customer username
Order_Date	Date/Time		Date order was placed
Ship_Method	Text	10	Shipping Method
Payment	Text	15	Payment method
CC_Type	Text	50	Credit card type
CC_Type	Text	50	Credit card number
CC_Type	Text	50	Credit card expiration date

Table 5.5: Orders Table

Products Table

This table stores the relevant information about each product offered on the V-Nuz.com web site. The fields stored are as follows:

Field Name	Field Type	Size	Description
Product_No	Text	6	Unique product number
Name	Memo		Product Name
Entry_Date	Date/Time	General Date	Track date record entry
Product_type	Text	40	Type of product
Category	Text	50	Product category
Description	Memo		Product detailed description
Photo_URL	Text	150	Photo URL
Photo_URL2	Text	150	Photo URL
Spotlight	Yes/No	Yes/No	Spotlight Item
Price	Number	Double	Product price

Table 5.6: Products Table

Administrator Table

This table stores the administrator information. This information is retrieve when administrator logon to the administrative site. The fields stored are as follows:

Field Name	Field Type	Size	Description
AdminID	Text	50	Administrator unique identifier
Password	Text	50	Admin password
Name	Text	50	Admin name

Table 5.7: Administrator Table

5.4) NETWORK DESIGN

Network design is concerned with the architecture of the system when it is implemented in a geographically distributed environment. It describes the network architecture/topology, transmission media, transmission mode, protocols and communications devices that are used to transmit data from one node to another.

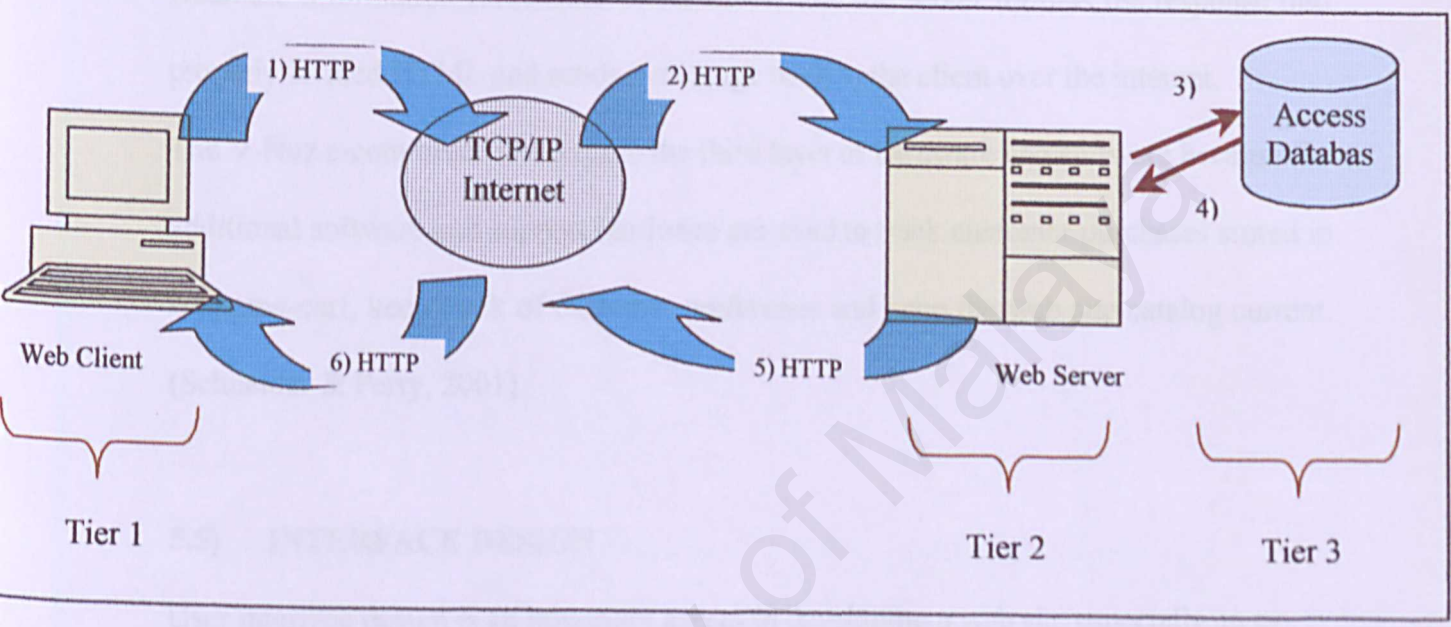

Figure 5.10: V-Nuz Web site network design

Figure 5.8 presents the V-Nuz e-commerce network design. The network design is a three-tier architecture. The first tier is the client, the second tier is the Web server and the third tier consist of the Access database to store the customer and product information that supply non-HTML information to the web server on request. The third tier provides comprehensive data services, including database operations supported by database software and other services needed to support a robust electronic commerce server.

When the user request a display for a particular product in the V-Nuz web site by using the search capabilities, the client request is formulated into an HTTP message sent over the Internet to the server, and examined by the server. Analysis of the request reveals that the request requires the help of the server's database. The server sends a request to the database to search for, retrieve and return data about the product description. Database information flows back to the server and the server formats the response into properly formed HTML and sends a message back to the client over the internet.

The V-Nuz e-commerce site require the third layer of hardware and software because the additional software and support hardware are used to track customer purchases stored in shopping-cart, keep track of customer preference and keep the web site catalog current. (Schneider & Perry, 2001)

5.5) INTERFACE DESIGN

User interface design is an important aspect in developing a web site especially an e-commerce web site. This is because an interesting user interface design will inspire and motivate a user to test and use the system. Beside that, user interface is the main attraction to get user to browse your web site.

Objectives of building a user interface:

- Effectiveness of using user interface

  This can be accomplish by designing an interface that meets the user requirements and the simplicity if the interface to avoid confusion.

- Interface reliability

  Interface accuracy in performing data capturing without errors.

- User judgement

  User interface developed must meets user requirements and respose given by the system must be accurate and meets the user's request.

- Productivity

  This can be measured by developing a good user interface that reduce building cost and response time.

Interface design will visualize the display that will be used as an interaction medium between the user and the system. There are several factors need to be considered when designing the interface:

1. Soft background colour , icons, logos, pictures and appropiate fonts.
2. Consistency betweeen pages to avoid confusion for users.
3. Control measures such as combo box, selection box and check box are used to accelerate data recording process.
4. Suitable type of fonts are used so that the interface would not look too complex and it would be more organized and easy to understand.

Below is a protoype of the interface for the proposed system:-

Figure 5.11: V-Nuz Web site main page

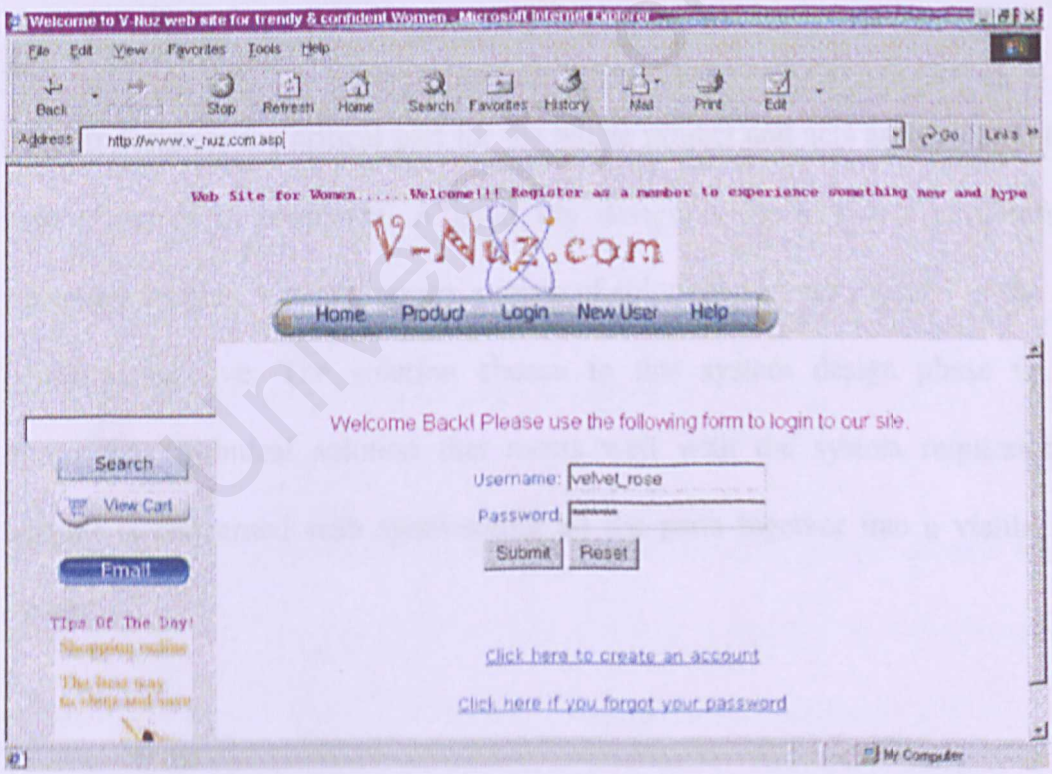

Figure 5.12: Customer login form

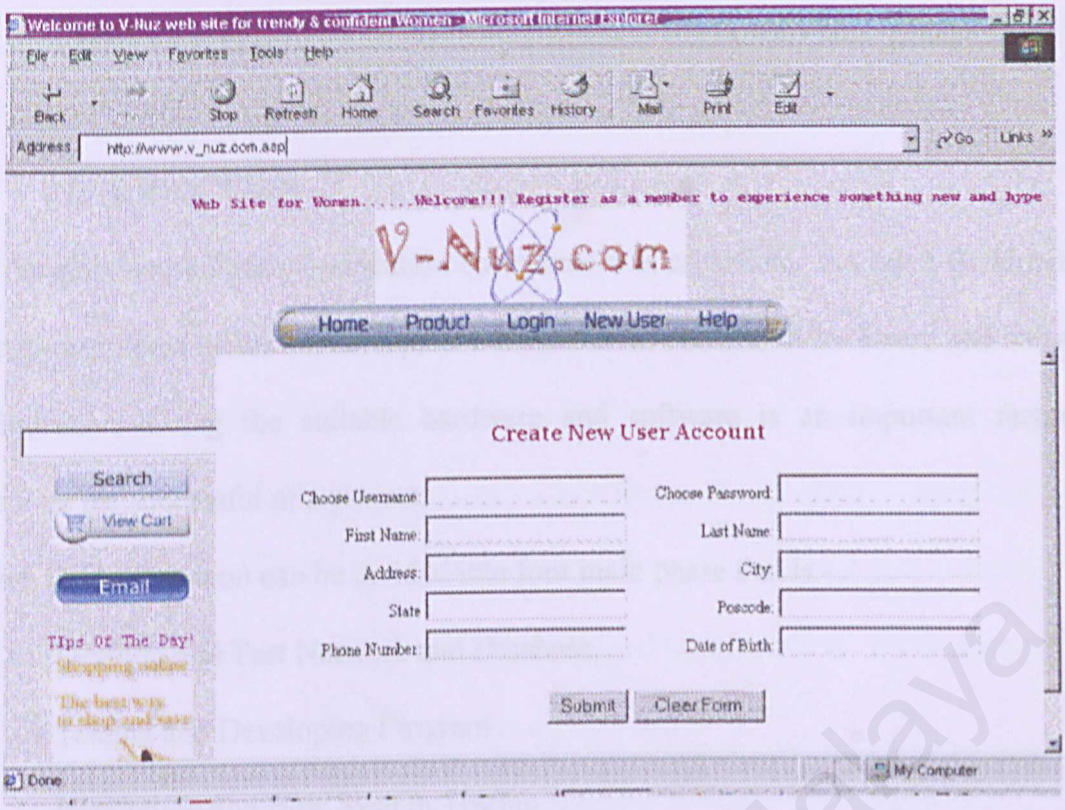

Figure 5.13: New User Account Page

5.5) SUMMARY

System design is the critical part for the whole project and acts as the motivator for the next phase of development. A good key design is the key to a successful system management plan, where it covers a range of solutions and put the flow of the system in better perspective. The solution chosen in this system design phase is the most appropriate technical solution that meets well with the system requirements. This chapter is concerned with synthesizing all the parts together into a viable, workable system.

CHAPTER 6: SYSTEM IMPLEMENTATION & DEVELOPMENT

6.0) INTRODUCTION

The development and implementation environment is crucial for the rapid development of an E-commerce system. Development environment consists of hardware and software configuration. Using the suitable hardware and software is an important factor to determine the successful of a project.

System implementation can be divided into four main phase that is:-

i) Develop and Test Network and Database

ii) Testing and Developing Program

iii) Installation and New System Testing

iv) Delivering the New System for Operation

6.1) SYSTEM IMPLEMENTATION PHASE

6.1.1) Building and Testing Network and Database

If a new application requests for a new network or a new database, it will first be implemented before developing and installing the computer program. The database used for the V-Nuz On-Line System is Microsoft Access 2000.

The main input for this phase is the subset from the real technical design that visualize the network or the database design. The main product is a network and database that has not yet been populated. The structure of the database has been implemented but data has

not yet been inserted in the structure of the database. Program developer will finally write a program to populate and enchance the database.

6.1.2) Building and Testing the Program

This phase is also known as the development phase. Program developing and testing usually takes a very long time and it is a very tiring phase in developing a system. Program developer has to work from the specification that has been developed and filtered through the prephase and preactivity in the Waterfall Model. If the specification of the system is not clear, not completed, not accurate or ruined, the development phase will be more complicated and takes a longer time.

The main input to this phase is the subset from the technical design statement that contains the specification of the program. If the new or modified network and database will be used, the database that has been implemented but has not yet been populated is the input from the implementation phase that has been done before. The product of this phase is a computer program that has not yet been installed but has been completely tested and debugged to be used for production.

6.1.3) Installing and Testing the New System

The next phase in system implementation is to install and test the new system using the simulator. The main input to this phase is a subset of the technical design statement that gives the specification on how the program has been developed and tested. Files and database will be piled up in the integrated system.

6.1.4) Delivering the New System for Operation

The final phase in implementation is to deliver the new system for operation. By providing a various system manuals helps users in using the new system.

6.2) DEVELOPING V-NUZ.COM ON-LINE SYSTEM

The development phase is the most time consuming phase for developing V-Nuz web site. It involves interpretation and the implementation of all gathered requirements including system technical design into program codes.

The V-Nuz health & beauty system is classified as a web application. Most of the modules consist of dynamic pages that require the use of a powerful server-side scripting language. In this case, Active Server Page or better known as ASP is used in the developing of dynamic pages. VBScript, which is the foundation of ASP, is used for the server-side execution in V-Nuz system. Active Server Scripts are distinguished from HTML tags and normal content by using delimiters <% %>. The main tools used for coding is Macromedia Dreamweaver Ultradev 4.0 or better known as Ultradev. Ultradev provide the foundation for HTML authoring capabilities and to easily connect with the database and generate dynamic Web pages on a variety of form. (Nicholson, 2002).

Figure 6.1 illustrated the Ultradev Site Window for V-Nuz.com Web site

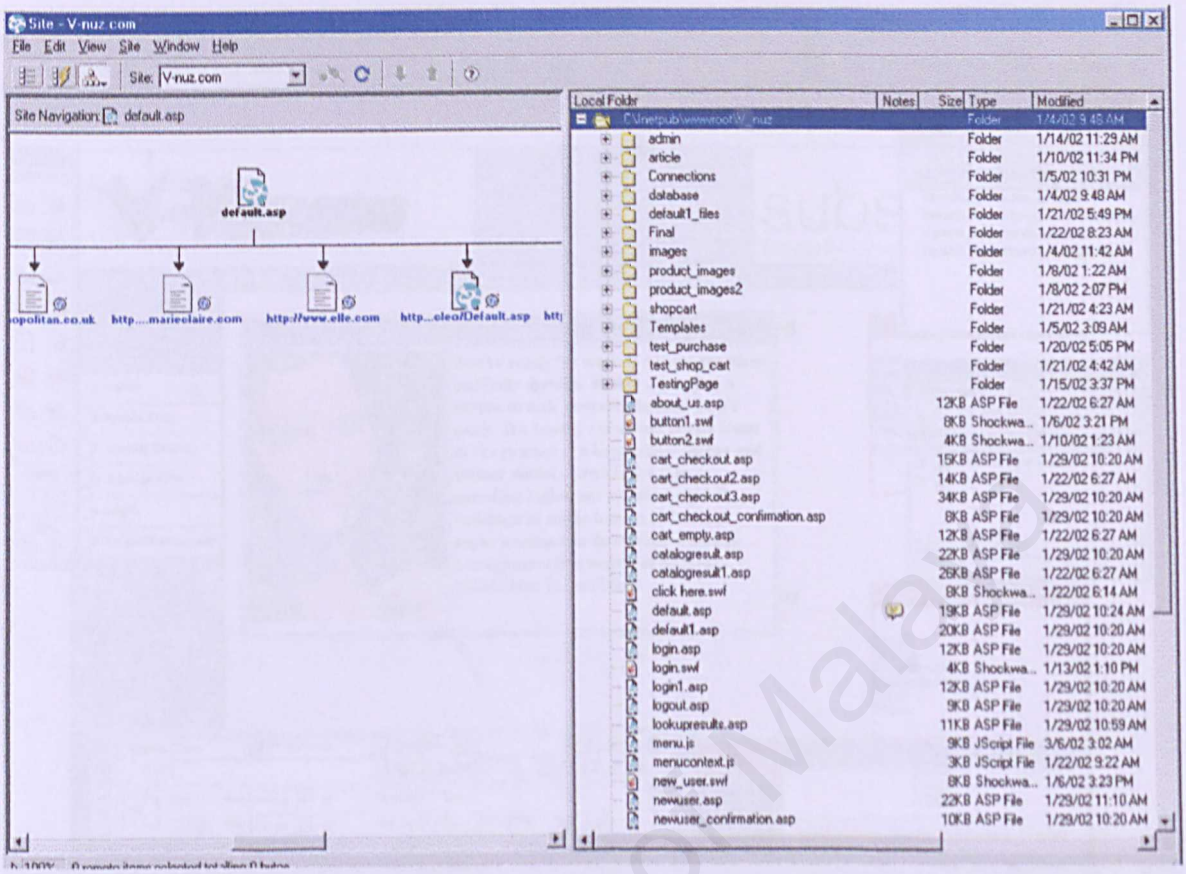

Figure 6.1: Ultradev Site Window

Although a lot of scripting is executed at the server side, there is still a need for client-side scripting to relieve the server of unnecessary load. In this case, JavaScript is used.

The browser validates most of the data entry fields before being sent to the server. For example, JavaScript is used to pre-check submitted forms before transmitting them to the server. This reduces the connection overhead, as well as validating the data and generates a response message.

Figure 6.2 illustrated the Page Layout Window for default.asp.

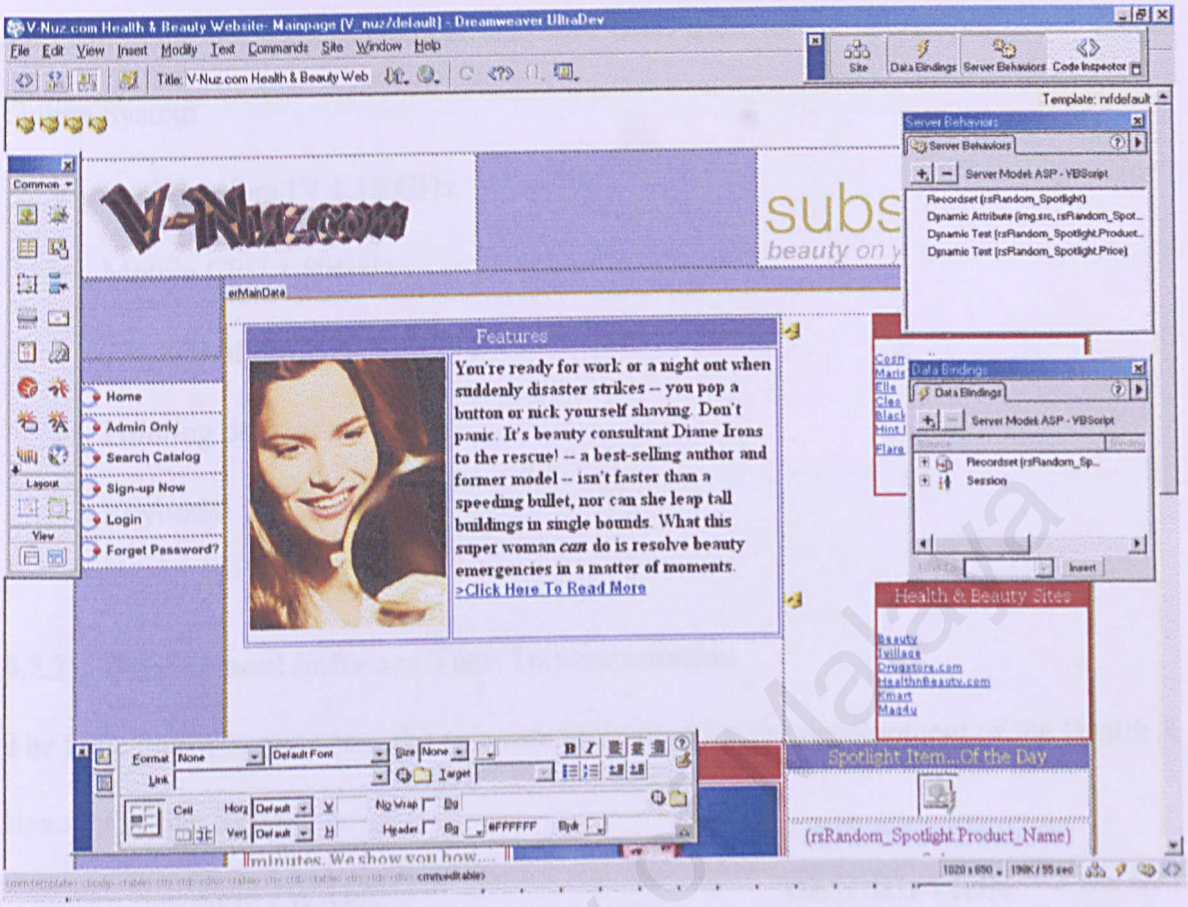

Figure 6.2: Default.asp Page Layout Design

To enhance the web page presentation, a few animations are added. Most of the web pages in V-Nuz.com consist of graphics, pictures and icon. The logo for V-Nuz.com site is created using Xara 3d while the images are being design using Xara Webstyle.

Most of the web pages created in V-Nuz.com web site are based on template. Template is used so that each web page has a common page layout and elements that present on every page. In addition, each web page will have a customizable and standard design.

6.2.1) System Development Platform

The following hardware specifications have been used for the development of V-Nuz Online System

- Intel Pentium IV 1.18 GHz
- Mobile CPU 1.80GHz
- 256 MB of RAM
- Pointing devices
- Keyboard

6.2.2) Development Software Tools Implementation

The table below summarizes the software tools used for the development of the Health & Beauty On-line System.

SOFTWARE	DESCRIPTION
1) personal Web Server	Web Server Host
2) Microsoft Access 2000	For building the V-Nuz database to store and manipulate data
3) Macromedia Dreamweaver Ultradev 4.0	Web page coding, ASP, HTML, Page layout design, Connection String
4) Internet Explorer 5.0	Web Client, Web page viewing
5) Visio 4.0	Diagram Creation
6) Xara 3D	Gif image creator
7) Xara Webstyle	Button, logo and banner creator
8) Microsoft ® Paint and Microsoft Photo Editor 3.01	Image editing
9) Microsoft Word	Writing Document and Report

Table 6.1: Software Tools

6.2.3) Web Server – Personal Web Server

A web server is needed for the entire V-Nuz system, as it is an online system. The Personal Web Server is an ideal environment for testing the Active Server Pages in V-Nuz.com Web site. PWS can be install easily in minutes and it is an excellent solution for developing the V-Nuz.com Web site. The PWS is suitable for testing the Web site before you uploading it to an Internet service provider. Figure 6.3 showed the PWS main window.

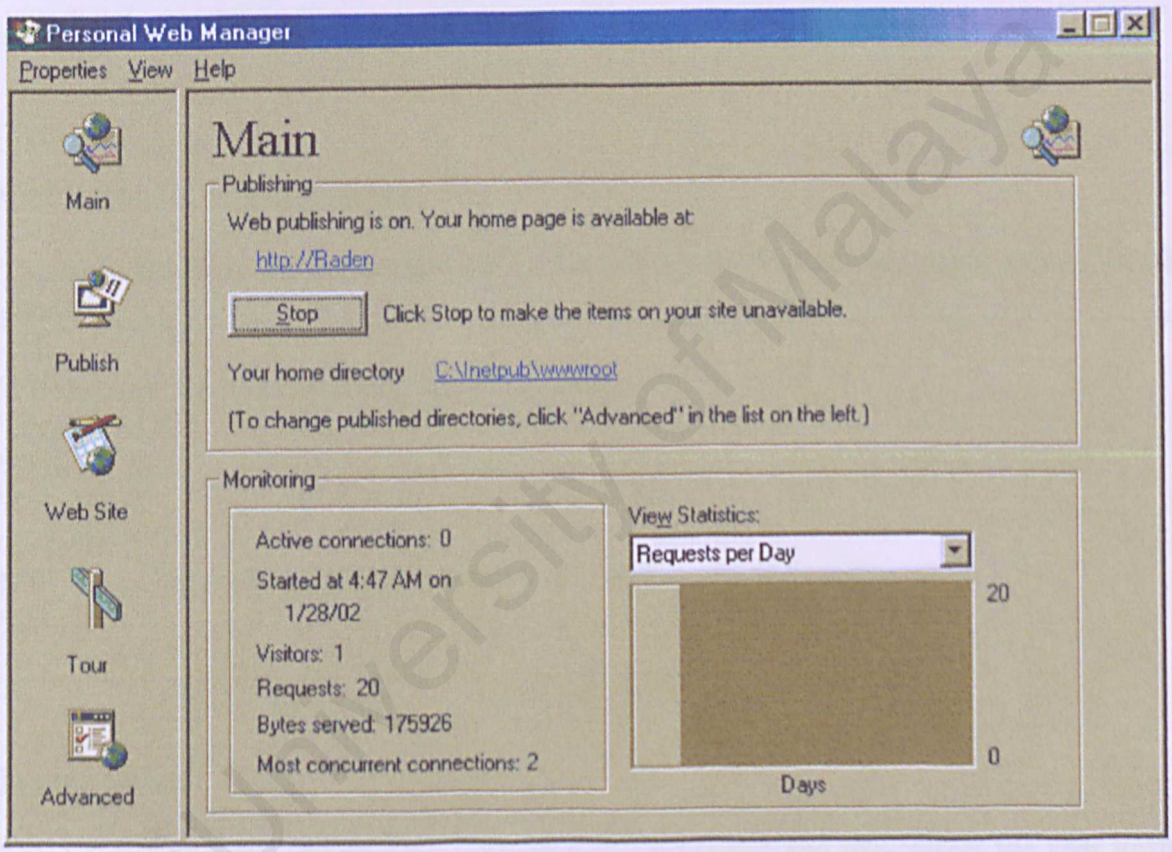

Figure 6.3:Personal Web Server Main Windows

6.3) CODING PHASE

Coding phase is the phase where all the result from the analysis and the design phase is being transform into a real application system. This phase requires a long period of time. Appropriate consideration of all the output from the phases that had been completed must be revise by the developer before it is being transformed into an application system.

6.3.1) Coding Implementation

Below are the codings uses for some of the main function in V-Nuz.com Web site

Connection to V-Nuz Database

The code below is the connection string for linking the V-Nuz web pages to the V-Nuz database.

```
<%
' FileName="Connection_odbc_conn_dsn.htm"
' Type="ADO"
' HTTP="false"
' Catalog=""
' Schema=""
MM_connCustomer_STRING = "dsn=V_nuzdb;"
%>
```

Login Module

The Login code will validate the username and password and then direct the user to the respective page.

```
<%@LANGUAGE="VBSCRIPT"%>
<!--#include file="Connections/connCustomer.asp" -->
<%
Dim rsLogin__strCustomerID
rsLogin__strCustomerID = Session("MM_Username")
%>
<%
```

```
Dim rsLogin__strPassword
rsLogin__strPassword = Session("MM_Password")
%>
<%
' *** Validate request to log in to this site.
MM_LoginAction = Request.ServerVariables("URL")
If Request.QueryString<>"" Then MM_LoginAction = MM_LoginAction + "?" +
Request.QueryString
MM_valUsername=CStr(Request.Form("username"))
If MM_valUsername <> "" Then
 MM_fldUserAuthorization=""
 MM_redirectLoginSuccess="validation.asp"
 MM_redirectLoginFailed="validation_fail.asp"
 MM_flag="ADODB.Recordset"
 set MM_rsUser = Server.CreateObject(MM_flag)
 MM_rsUser.ActiveConnection = MM_connCustomer_STRING
 MM_rsUser.Source = "SELECT CustomerID, Password"
 If MM_fldUserAuthorization <> "" Then MM_rsUser.Source = MM_rsUser.Source &
"," & MM_fldUserAuthorization
 MM_rsUser.Source = MM_rsUser.Source & " FROM Customers WHERE
CustomerID='" & MM_valUsername &"' AND Password='" &
CStr(Request.Form("password")) & "'"
 MM_rsUser.CursorType = 0
 MM_rsUser.CursorLocation = 2
 MM_rsUser.LockType = 3
 MM_rsUser.Open
 If Not MM_rsUser.EOF Or Not MM_rsUser.BOF Then
  ' username and password match - this is a valid user
  Session("MM_Username") = MM_valUsername
  If (MM_fldUserAuthorization <> "") Then
   Session("MM_UserAuthorization") =
CStr(MM_rsUser.Fields.Item(MM_fldUserAuthorization).Value)
  Else
   Session("MM_UserAuthorization") = ""
  End If
  if CStr(Request.QueryString("accessdenied")) <> "" And false Then
   MM_redirectLoginSuccess = Request.QueryString("accessdenied")
  End If
  MM_rsUser.Close
  Response.Redirect(MM_redirectLoginSuccess)
 End If
 MM_rsUser.Close
 Response.Redirect(MM_redirectLoginFailed)
End If
%>
```

Search Result Module

The search result code is for single search parameter.

```
<%@LANGUAGE="VBSCRIPT"%>
<!--#include file="Connections/connCustomer.asp" -->
<%
Dim rsProduct_Catalog__MMColParam
rsProduct_Catalog__MMColParam = "1"
if (Request.QueryString("Category") <> "") then rsProduct_Catalog__MMColParam =
Request.QueryString("Category")
%>
<%
set rsProduct_Catalog = Server.CreateObject("ADODB.Recordset")
rsProduct_Catalog.ActiveConnection = MM_connCustomer_STRING
rsProduct_Catalog.Source = "SELECT Product_No, Product_Name, Product_type,
Category, Description, Photo_URL, Photo_URL2, Price FROM Products WHERE
Category = '" + Replace(rsProduct_Catalog__MMColParam, "'", "''") + "' ORDER BY
Product_type ASC"
rsProduct_Catalog.CursorType = 0
rsProduct_Catalog.CursorLocation = 2
rsProduct_Catalog.LockType = 3
rsProduct_Catalog.Open()
rsProduct_Catalog_numRows = 0
%>
```

Password Lookup Module

To retrieve the registered user password, a correct combination of City of birth and username must enter. This password lookup is a search function.

```
<%@LANGUAGE="VBSCRIPT"%>
<!--#include file="Connections/connCustomer.asp" -->
<%
Dim rsLookup__strCustomerID
rsLookup__strCustomerID = "qwe321hhj"
if (Request.Form("tfUsername") <> "") then rsLookup__strCustomerID =
Request.Form("tfUsername")
%>
<%
Dim rsLookup__strCity_of_birth
rsLookup__strCity_of_birth = "xyz321cba"
if (Request.Form("tfCityofbirth") <> "") then rsLookup__strCity_of_birth =
```

```
Request.Form("tfCityofbirth")
%>
<%
set rsLookup = Server.CreateObject("ADODB.Recordset")
rsLookup.ActiveConnection = MM_connCustomer_STRING
rsLookup.Source = "SELECT * FROM Customers WHERE CustomerID='" +
Replace(rsLookup__strCustomerID, "'", "''") + "' AND City_of_birth='" +
Replace(rsLookup__strCity_of_birth, "'", "''") + "'"
rsLookup.CursorType = 0
rsLookup.CursorLocation = 2
rsLookup.LockType = 3
rsLookup.Open()
rsLookup_numRows = 0 %>
```

Spotlight Item

The spotlight Item code will randomly display a product every time the default.asp is refreshed.

```
<%@LANGUAGE="VBSCRIPT"%>
<%
Dim rsRandom_Spotlight__MMColParam
rsRandom_Spotlight__MMColParam = "1"
if (Request.QueryString("Spotlight") <> "") then rsRandom_Spotlight__MMColParam =
Request.QueryString("Spotlight")
%>
<% set rsRandom_Spotlight = Server.CreateObject("ADODB.Recordset")
rsRandom_Spotlight.ActiveConnection = MM_connCustomer_STRING
rsRandom_Spotlight.Source = "SELECT Product_No, Product_Name, Photo_URL,
Photo_URL2, Price FROM Products WHERE Spotlight = " +
Replace(rsRandom_Spotlight__MMColParam, "'", "''") + ""
rsRandom_Spotlight.CursorType = 3
rsRandom_Spotlight.CursorLocation = 2
rsRandom_Spotlight.LockType = 3
rsRandom_Spotlight.Open()
rsRandom_Spotlight_numRows = 0
%>
<% Randomize
rsRandom_Spotlight.Move Int(Rnd * Cint(rsRandom_Spotlight.RecordCount))
rsRandom_Spotlight.Update %>
```

6.4) DEBUGGING

Debugging is necessary when an error is encountered. One of the most common errors encountered while developing a web page includes the requested page couldn't be displayed. Usually, the program is debugged from within Macromedia Ultradev with it's standard features like live data. Ultradev can handle VBScript and JavaScript code and can be launched on a just-in-time basis when errors occur in page loaded into Internet Explorer. Error message displayed by the browser every time an error occurred and it also provides important information during the debugging process. The figure below showed the error encountered during debugging.

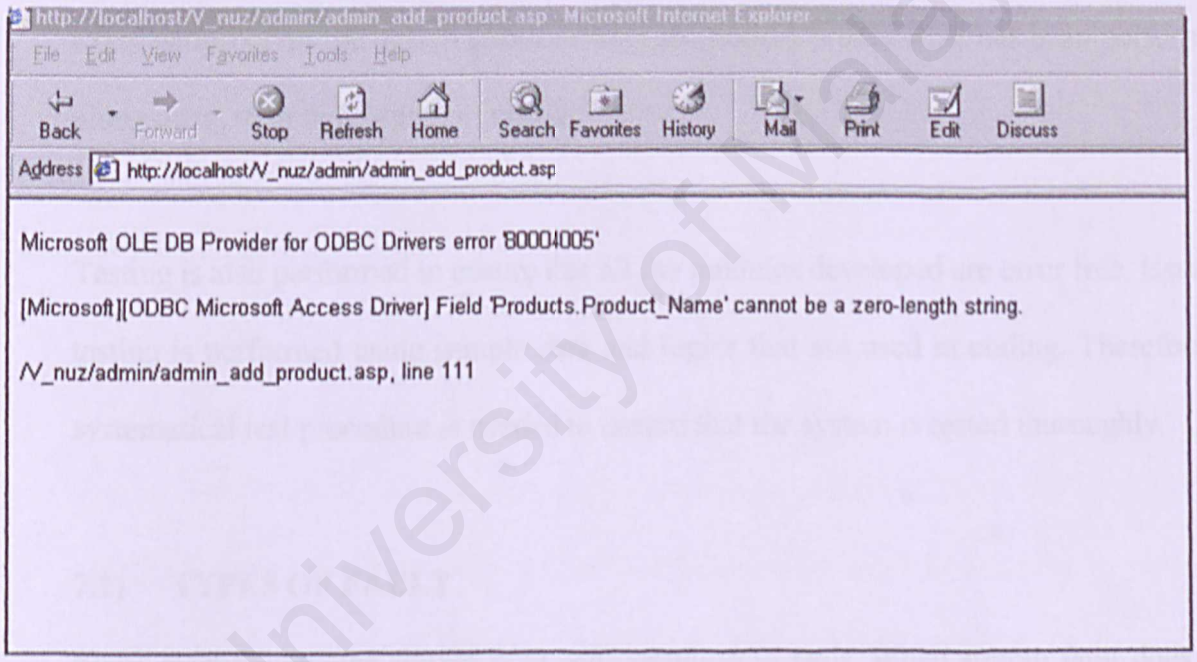

Figure 6.4: Error during debugging

6.5) CONCLUSION

From the explanation given in this chapter, it can be summarized that the coding phase is one of the complicated and time consuming phase in the process of developing the V-Nuz.com Health & Beauty system.

CHAPTER 7: SYSTEM TESTING

7.0) INTRODUCTION

The main objective of testing is to uncover different types of errors that exist while executing the system. System testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. However, testing cannot show the absence of defects, it can only show that software defects are present. A testing strategy is a general approach to the testing process rather than a method of delivering particular system or component test. This process involves careful examination of all the design specifications and coding process that has been performed along the system development process.

Testing is also performed to ensure that all the modules developed are error free. Usually testing is performed using sample data and logics that are used in coding. Therefore, a systematical test procedure is needed to ensure that the system is tested thoroughly.

7.1) TYPES OF FAULT

Every system contains simple fault and complicated fault. When simple fault does not exist system will be tested for segregating many faults by creating options where the system will function as desired. That is why it is important to know what kind of errors need to be identified. Fault or mistake can be divided into three types:

- Algorithmic faults
- Syntax faults

- Documentation faults

7.1.1) Algorithmic faults

Algorithmic faults occur when the algorithmic components or logic components is not producing the desired output for the input given. This happens because of a mistake that occurs during processing steps. This type of mistake is quite easy to be identified just by looking at the coding or by sending an input data to every different data class. The types of mistake are as follows:

- Testing for the wrong condition
- Forget to declare variables or different loop
- Forget to test for certain condition such as an integer divided by zero
- The use of out of range variables such as using local variables at other functions.

7.1.2) Syntax Faults

Syntax faults can be checked during an algorithmic fault occurrence. This will cause inaccuracy in writing the code of the programming language. When a program is running, incase there are any syntax errors, it will be identified and the location and type of errors will be stated.

7.1.3) Documentation Faults

Documentation process of a system is not an easy task. It usually contains spelling mistake, inaccurate term and incorrect guide that might lead to instruction's

misunderstanding by readers. Documentation is very crucial to ensure that the system that is developed can be modify accordingly in the future for organization needs.

7.2) SYSTEM TESTING

System testing is ideally performed by developers using an environment similar to the production environment. This testing ensures that the system meets externally observable requirements including:

- Functional requirements, for example, "The system shall allow users to view their requested result or output."
- Derived requirements such as performance, robustness, and scalability.
- Usability requirements.

[Bennett, C., 2001]

The main intention of the testing process is to evaluate how much fault can be reduced in the program or in the module itself. The correction process on demonstration is against the meaning of testing. Testing is performed on the program to demonstrate existing fault. Since the main objective of testing is discovery of faults, all the faults that might lead to failures during actual system usage will be eliminate to ensure successful testing result. Fault identification is a process to determine fault or the cause of it, while fault correction is a process to make changes to eliminate fault.

Five main tests have been conducted on V-Nuz.com E-commerce system, to ensure the system works as a whole. The testing stages are: -

i. Unit Test

ii. Integration Test

iii. Functional Test

iv. Performance Test

v. Acceptance Test

Testing sequence is as shown in Figure 7.1. Test performed on V-Nuz.com is a bottom-up testing technique that is starting the test from the smallest unit until the system is entirely tested including the installation of the system.

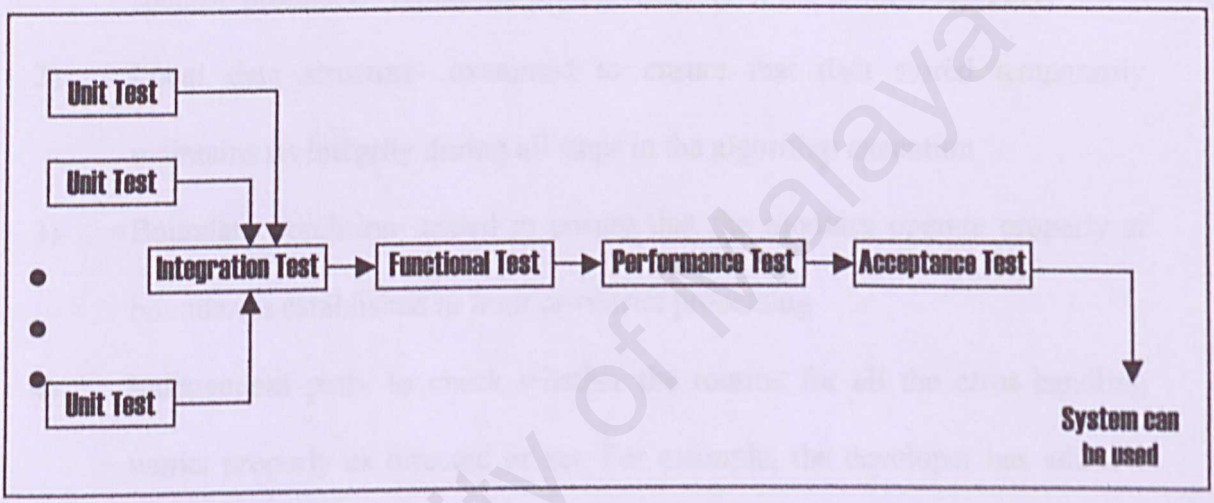

Figure 7.1: Testing Steps

7.2.1) Unit Testing

Unit testing involves testing on smaller unit called module that is focused on logic, accuracy, condition boundaries and error management. In details, it ensures the flow of accurate information that is all the units are able to receive input entered and produce the output as expected.

V-Nuz online system contains a few modules that perform specific function and in each of the modules contains some sub function or action command. Therefore, unit testing is conducted on every sub-function and finally on the module itself.

The following aspects are considered, in unit testing:

1) Interface- tested to ensure that information properly flows in and out of the program unit. The entire interface in V-Nuz.com web page had been tested thoroughly to make sure that data can be passed from the previous to the next page. For example, when adding a new product in the administrative site menu. To check whether the following product added stored in the V-Nuz database, the search function is use to retrieve the following data about that specific product by typing the product number or the product category.
2) Local data structure- examined to ensure that data stored temporarily maintains its integrity during all steps in the algorithm execution
3) Boundary condition- tested to ensure that the modules operate properly at boundaries established to limit or restrict processing.
4) Independent path- to check whether the routine for all the error handling works properly as directed or set. For example, the developer has added a function to ensure that the user fills up every needed field before they proceed to the following page. The program is tested on the error handling by entering data with some field is left empty. The message box prompted out indicates that the error handling works properly.

Besides that, boundary conditions must be executed correctly according to the status that has been set so that one pathway can be transferred to another pathway incase needed. Other than that, it tests every error management pathway to ensure whether the process will continue or it will be transferred to another pathway when an error occurs. For example, for the new user registration module, when information about user is entered in

the registration form, the form will be validated and the data will be store in the Customers table. The database of the module will then be checked whether all the data entered through the form are successfully recorded in the database. If all the data entered through the interface are available in the database that means that the unit created for that module is successful.

7.2.2) Integration Testing

It is a process that validates the system components so that it can work along together as described in the program design specification and system. It focused on testing one or more module that has been integrated. An example of the integration test performed is an integration test was done on several integrated modules such as the search module and the detail page module that has been integrated. Relevant data are entered in the module according to the specification specified and then the database of these modules will be examined to ensure that the flow of data from one module to the other module is accurate. Integration test is also done to determine whether the integration effect has a negative effect on the performance of each module.

In performing the integration test for this project, bottom-up integration test strategy has been used. In this strategy, every component that exists at the lowest level in the system hierarchy will be tested individually. The next components that will be tested are components that will call the tested components in order to function. This type of approach is used until all of the components involved in the system are tested.

7.2.3) Function Testing

After the information sent between the components is accurate or according to the design specifications, system is tested to ensure it fulfills the functions required for the system. Function testing evaluates the system to determine whether the function described by the requirements specifications can really be presented by the system that has been integrated.

Test conducted on the Login Function

The two functional requirements of the login system is to allow system administrator and authorize user to login into the system.

Tests conducted on this function with a valid data showed that all the functional requirements are satisfied. Tests conducted on this function with invalid data reveals several errors. The developer than modified the system to handle these errors.

Description of Errors	System Action	Feedback to User/ Error Message
Invalid username and password.	Refuse to verify user.	Login Failed. Please try to login again.
Invalid administrator ID and password.	Refuse to verify user	Login Failed. Please try to login again.

Table 7.1: Description of Errors (Login Function)

Test Conducted on New User Registration Function

These functions were tested by using invalid data format and leaving some or one of the field blank. An existing username was use to test the username taken function.

Description of Errors	System Action	Feedback to User/ Error Message
All required field must be fill.	Refuse to submit the form	Please fill in all the required field before

		submitting the form.
Wrong format inserted in the specific field. (e.g: Email)	Prompt window message.	The following error occurred. tfEmail must contain an email address.
Username taken	Redirect to username_taken.asp page	Username selected has been taken. Choose different username.

Table 7.2: Description of Errors (User Registration Function)

Test conducted on the search capabilities

Test conducted by entering a wrong product number in the search form.

Description of Errors	System Action	Feedback to User/ Error Message
No product number in database match the entered value.	Submit the search form	No data extracted from the V-Nuz database.

Table 7.3:Description of Error (Search Function)

Test conducted on the search password

The function was tested by using data that didn't matched.

Description of Errors	System Action	Feedback to User/ Error Message
Username and city of birth don't match	Submit the search password form. Check username and city of birth.	The combination for username/city of birth was incorrect. Return to the form.

Table 7.4: Description of Errors (Search Password Function)

7.2.4) Performance Testing

Testing is performed during system run-time to evaluate the system performance entirely. This includes the aspect of response time, system accuracy and amount of memory used.

7.2.5) Acceptance Testing

The developer have designed the test cases and administered all tests herself. The purpose of acceptance testing is to enable the users to test the V-Nuz system and determine whether the system meets their expectations and requirement.

The testing involved 10 users were conducted to acquire the users opinion on the V-Nuz system. After the testing, questionnaires were distributed among testers. The questionnaires are distributed to evaluate the V-Nuz system on the performance, the functionality and the usability of the system. Basically, the evaluation came up with positive reviews. Please refer to appendix A for the questionnaire.

Some pages and function have been added and improved base on the user's comment after they had test the system.

-More article on health & beauty are added.

-When submitting a form the system will prompt a message to confirm the action.

-An advanced search capabilities is added, so that user can broaden the search by reducing the number of restrictions user has entered.

-a scrollable JavaScript navigation bar is added .

Analysis on the feedback provided by users.

In question 1 touched on the ease of understanding the information provided in the system, 8 users are satisfied and answered Yes while 2 users said No and find that the information not adequate enough for them. For the system usability all of the user answered Yes.

For question 3, 6 users agreed that the system response time is fast, while 3 users said it is acceptable and 1 user thinks it is slow. For the next question, 7 users face no problem navigating throughout the web site. However 3 testers were annoyed when they tested some pages that force them to scroll all the way up after navigating pages that contains a lot of information.

The following question stressed on the quality of the presentation for the information was good, were 3 users strongly agreed, followed by 4 users that totally agreed, 1 user neither agree nor disagree and 2 users disagree.

Question 7 pointed on the web browser interface. 4 users think that it is very good followed by 4 users that rated it as good and 1 user rated it as fair. The next question requires the users to rate the V-Nuz.com web site. 2 found it to be very good, followed by 5 users rated it as good and 3 users think that the web site presentation is fair.

An informal interview was conducted after the testing, the users are mostly impressed with the professional look of the web site with its wise choice of colors were it showed the identity of a women's site. They also find that the information and the product catalog are attractive and interesting. However, they would prefer more information on women's health to be added to the V-Nuz.com web site.

For future enhancement, most testers suggested a quiz on relationship, health, beauty and etc. Besides that, they think adding a chat function will make the web site more interesting.

7.3. SYSTEM TESTING TECHNIQUE

Techniques used for testing depends on the testing level that has been set. At unit testing level, white box technique has been used to determine errors as shown in Figure 6.2.

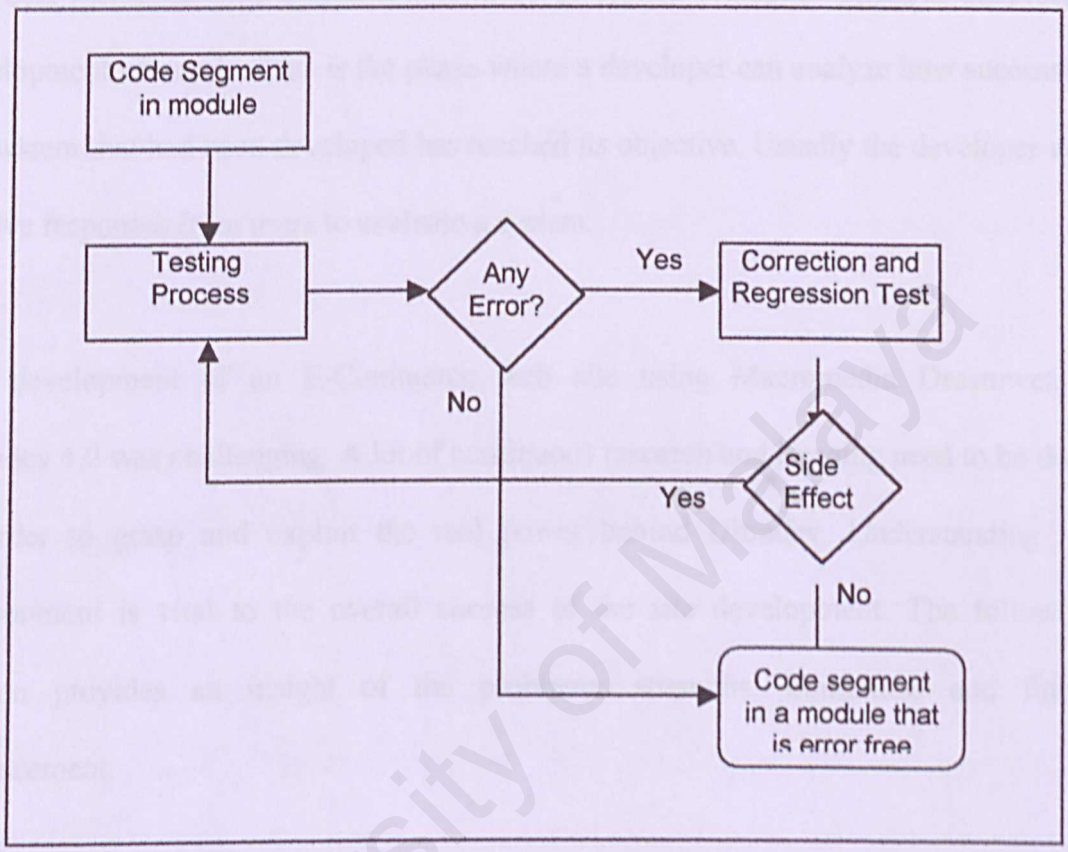

Figure 7.2 : Unit Testing Scheme

7.4. SUMMARY

With the entire test that has been carried out, errors in the system are identified and removed. Although errors have been removed, this does not mean that the system is error free, but at least it minimized the risk of system failure. The system should be tested thoroughly to ensure its reliability, its efficiency and its usability. It is very important that the user can understand and easily navigate throughout the V-Nuz.com web site.

CHAPTER 8:SYSTEM EVALUATION AND CONCLUSION

8.0) INTRODUCTION

The best way to develop a system is to involved system evaluation phase in the system development life cycle. This is the phase where a developer can analyze how successful the system that had been developed has reached its objective. Usually the developer will receive responses from users to evaluate a system.

The development of an E-Commerce web site using Macromedia Dreamweaver Ultradev 4.0 was challenging. A lot of continuous research and learning need to be done in order to grasp and exploit the real power behind Ultradev. Understanding it's environment is vital to the overall success of the site development. The following section provides an insight of the problems, strengths, limitations and future enhancement.

8.1) OVERALL SYSTEM REVIEW

After further analysis, the developer has added several other functions to enhance the V-Nuz.com On-Line System. The functions added to the V-Nuz.com are:

8.1.1) Spotlight Item

The spotlight item can be view in the default page of V-Nuz.com. It will randomly display all the items highlighted as spotlight in the V-Nuz database. So every time went the default page is refreshed, a new product will be display under the Spotlight Item column. It's a marketing strategy to continually offer new and fresh material to the

visitors. Returning customers would always have the opportunity to see what is now being offered by V-Nuz.com.

8.1.2) Password Lookup System

This is a method for looking up password. It requires the entering of the visitor's username and their city of birth. This system is considered a simple search. In order to be effective and provide the required security, certain restrictions have to be placed on the form being submitted that are:

- All fields must be completed before the form can be submitted.
- Each data submitted via the form must match the information stored in the database.

8.1.2) Admistrative Site

The administration function is enhance by including an Administrative Site where a search function is inserted. Administrator can do update, edit and delete the product stored in the database on-line without having the hassle to edit the data direct in the database table.

8.2) PROBLEMS ENCOUNTERED & SOLUTION

As this project has to be done within a short spasm of time and a lot of technical issues need to be resolved, a number of problems were encountered throughout the development of this system. Solutions have been sought during testing. Encountering with these problems has been proven to be a valuable learning experience.

8.2.1) Lack of Abilities

Starting the project without prior knowledge of ASP, VBScript and JavaScript cause a lot of uncertainty in the coding. Lack of ability in Microsoft Access 2000 had caused some problems at the beginning of the project because the database is the foundation of this system.

It takes quite a long time for the developer to master all the skills needed because the developer has to start from the very basic. References from books and online information do help a lot in order to grasp these languages and developing the database.

8.2.2) Insufficient reference material

At the beginning of the project, the developer had insufficient reference material to develop the system. Reference material at the market is sold at a very high price and the reference material in the library is limited and most of it is outdated.

The developer manage to overcome the problem by taking several alternatives such as borrowing reference books from friends besides having to buy some books that are appropriate in developing the system. The Internet also provides relevant information regarding the system that is being developed. The developer also joins discussion forums in the Internet regarding e-commerce to obtain extra knowledge regarding the programming languages and other information related to the Health & Beauty System.

8.2.3) Difficulties in determining the scope of the system

It is impossible to build a full-scale complete system within the short time frame. Not all the ordering alternatives are put into the system. The results of studying on the existing system have given an outlook of the system scope.

8.2.4) Difficulty in designing the layout

One of the major obstacles encountered in developing the system is choosing a common theme for the layout of the on-line system. Designing the interface of the system proved to be a daunting task, as it needs a lot of creativity. As the subject of V-Nuz.com system involve Health & Beauty product, the web pages need to look professional, uniform and at the same time interesting enough to attract recurrent users. Furthermore, the interface must provide easy navigation so that the user does not get lost.

To solve the problems, the developer surf through the Internet to obtain ideas from other related web sites. Besides that, opinion from friends help the developer to improved the interface so that the V-Nuz.com site will have its on identity.

8.3) SYSTEM STRENGTH

8.3.1) User Friendly and Easy to Use Interface

The default layout of the web site has been customized to provide easier navigation. The main strength is using template. A top navigation bar form Dynamic Drive free JavaScript was inserted to the template. The navigation bar will always be on top of the

browser window even though the user scrolls until the bottom of the page. Drop down list and swapping buttons are added to better enhance the usability of the site.

8.3.2) Identification and Authentication

In order to gain access to the administrative site, administrator are required to login using an authorized ID. For the client-side, only registered member can purchase the Health & Beauty product, were they must login before continuing with the purchasing transaction in the shopping cart.

8.3.3) Resolution dependent

Each and every web page in the V-Nuz.com site used a single table that provides the web pages with left and right margin. The table is set to expand to fill the browser screen vertically for every resolution. So the web pages in V-Nuz.com can be viewed using any resolution.

8.3.4) System Transparency

System transparency refers to the condition where the users do not need to know where the database resides, how is the system structure, its Database Management System and anything related to the system built. Users are just required to know how to communicate with the user interface.

8.3.5) Search Capabilities

There are two types of search capabilities provided in the V-Nuz.com web site. First, is the single parameter search where it query the database using a single piece of data. It is

built into a link inside the top navigation bar. Next, is the advanced search capabilities where it offer the user to shape their results by providing a wide variety of search options and allowing user to choose which criteria they wish to search by.

8.4) SYSTEM LIMITATION

Due to time and resources constraints, the site is not fully developed in all aspects. There are some limitations exist in the site. These includes:

8.4.1) Vulnerability to hacking

The system is not protected by Secure Socket Layer (SSL) and is very vulnerable to hacking. Therefore the security of the site is compromised.

8.4.2) Lack of information provided

Most of the basic and daily information on Health & Beauty is provided in the article module. So user will only have a general idea about women's health and some tips on beauty.

8.4.3) No print-out function

Does not provide a printout function to generate any printed report for administrator and to print the Health & Beauty article module. Even though the above-mentioned functionality is out of the scope, it is an advantage to enhance the system.

8.4.4) Search Article

The entire Health & Beauty information web page is just a static page. There is no search function for the article module. User can only view the web pages using the links provided in the top navigation menu.

8.5) FUTURE ENHANCEMENT

Nothing is perfect. No doubt this system contains some omissions and inaccuracies. Despite its future, the application can be further improved and enhanced to include more features and functions.

8.5.1) Enhancement of the Article Module

More information can be added to the article module concerning women's health and beauty. A search engine can then be provided to allow users to search for the required information.

8.5.2) Print-out Function

Provide a print-out function for report generation and information on the article module.

8.5.3) Quiz Site

Adding e-learning application by developing a simple interactive quiz element. This will surely enhance the web site functionality

8.6) CONCLUSION

In summary, the system has been successfully developed, achieving the earlier proposed scope and objective. The whole project can be considered as challenging and fruitful endeavor. Self-studies and researches done during the development contribute a lot in acquiring new knowledge and skills, literature review on tools, system architecture and securities inadvertently provides invaluable knowledge regarding current trends in the IT industry.

Although not much of coding is performed and just merely customization of codes, still it does provide an insight of what is meant by a good structured and modular programming codes. Ultradev, which form the foundation for the development of the system, provides a picture of how well written codes were done. This kind of exposure would be useful for any future system development.

Furthermore, the setting up process of hardware and software offers a great deal of opportunities in acquiring and exploring new technologies. The installation, setting and configuration of the software were tedious and pain sticking task due to insufficient knowledge on these software.

In short, what have been learned and experienced during the development of this system will be useful and applicable for future endeavors.

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APPENDIX A

(USER'S SYSTEM EVALUATION)

APPENDIX A: USER'S SYSTEM EVALUATION

1. Is the information provided in the V-Nuz.com web site easy to understand?

   - ❑ Yes
   - ❑ No

2. Is the system easy-to-use (usability) ?

   - ❑ Yes
   - ❑ No

3. Is the system response time acceptable?

   - ❑ Fast
   - ❑ Acceptable
   - ❑ Not so fast

4. It was easy to navigate through the Web site.

   - ❑ Yes
   - ❑ No

5. The quality of the overall presentation of the information was good.

   - ❑ strongly agree
   - ❑ agree
   - ❑ neither agree or disagree
   - ❑ disagree
   - ❑ strongly disagree

6. How would you describe the quality of the overall Web browser interface features?

   - ❑ very good
   - ❑ good
   - ❑ fair
   - ❑ poor
   - ❑ very poor

7. How would you rate the Web site overall?

- ❑ very good
- ❑ good
- ❑ fair
- ❑ poor
- ❑ very poor

8. Give any suggestions or opinions to enhance the system requirements/needs.

_____

_____

_____

_____

Thank you for your time!

APPENDIX B

(USER MANUAL)

USER MANUAL CONTENTS

APPENDIX B: USER MANUAL

1.0) INTRODUCTION

V-Nuz.com is an on-line system developed primarily to disseminate and create awareness on women's health generally. Besides that, it also promotes and sells women's personal product. This women's site also provides beauty advice and tips generally on beauty care.

2.0) ABOUT THIS MANUAL

This user manual gives the users step-by-step guide through the online system from setting up to using the core function.

3.0) GETTING STARTED

This section will disscus the following:

3.1) Minimum Requirements

The minimal requirements to run V-Nuz system is listed below: -

Hardware Requirements :

- 300 MHz Pentium or faster processor
- 64 MB of RAM (128 MB recommended)
- 50 MB hard disk space
- Keyboard
- Mouse or any pointing device

Software Requirements:

- Windows 95/98/2000/NT
- Web Server
- Web Browser

PWS or IIS must be installed on the user computer to view the V-Nuz.com ASP. For this system PWS is recommended.

4.0) Deploying the V-Nuz H&B system

1) Insert the V.Nuz.com CD inside the CD drive.

2) Copy the V-Nuz folder to the Web server root folder.

3) Start the web server.

5.0) Establishing an ODBC Data Source for V-Nuz Database

1) Open the Windows "Control Panel". In Windows 95, 98, NT or 2000, this can be done by choosing "Start >Settings > Control Panel". Figure 1.

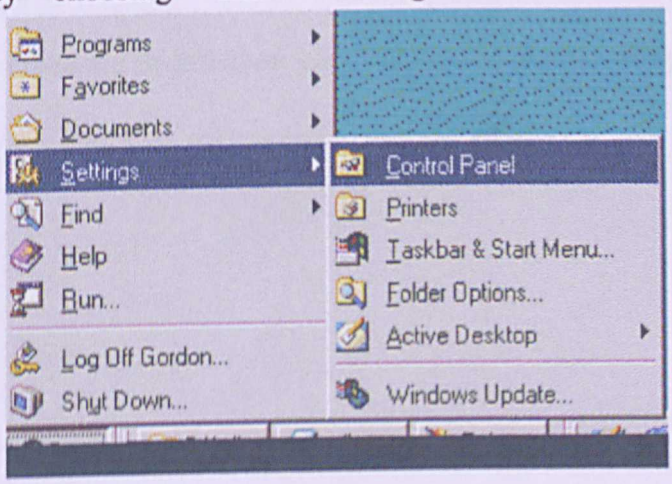

Figure 1

2) Double click on the "ODBC Data Sources" icon. It will be marked ODBC or 32bit ODBC (Figure 2)

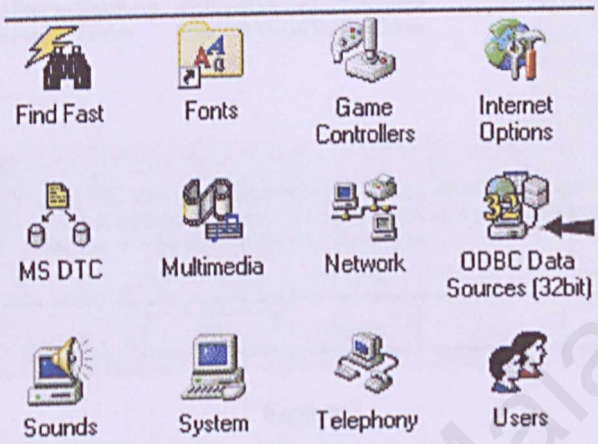

Figure 2

3) For Windows 2000, user will have open "Administrative Tools > Data Sources". The "ODBC Data Source Administrator" box will open (Figure 3)

4) In the "ODBC Data Source Administrator" box, click the "System DSN" tab. A list of DSN's currently installed on your PC will be display. (Figure 4)

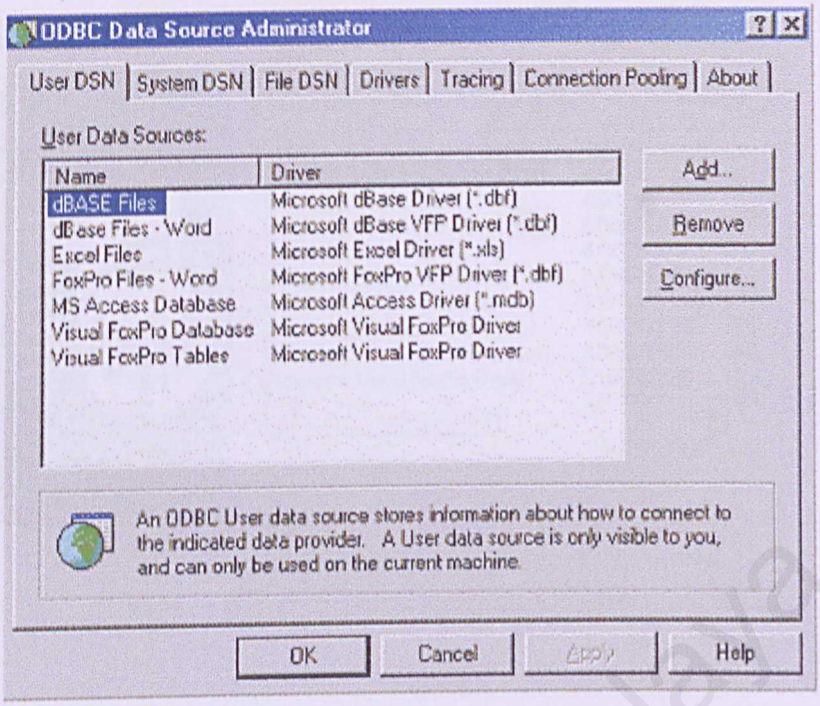

Figure 3

5) Choose the System DSN tab from the ODBC Data Source Administrator dialog box, shown in Figure 4 , and click the Add button.

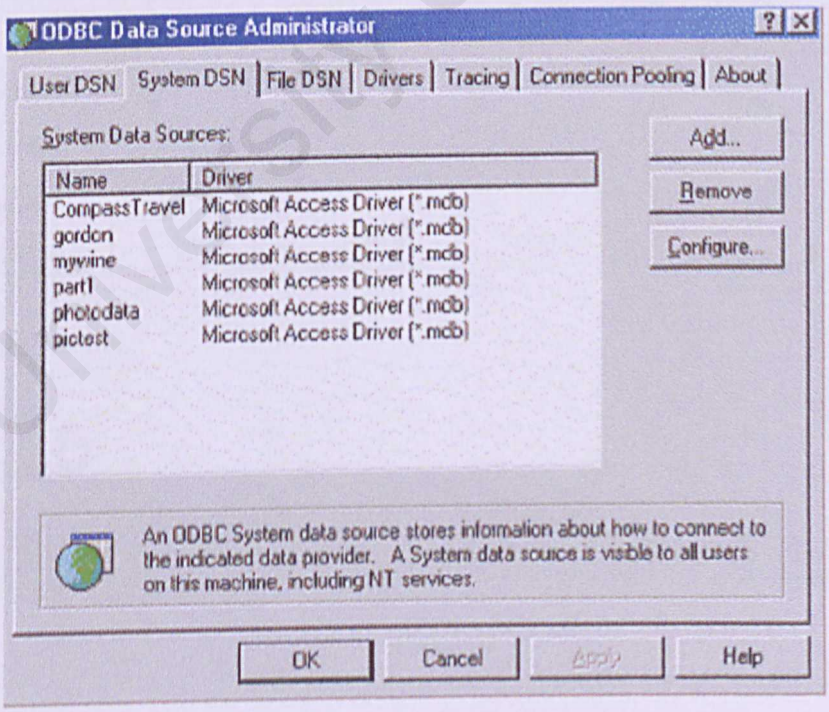

Figure 4

6) Select the Microsoft Access driver and click Finish. (Figure 5)

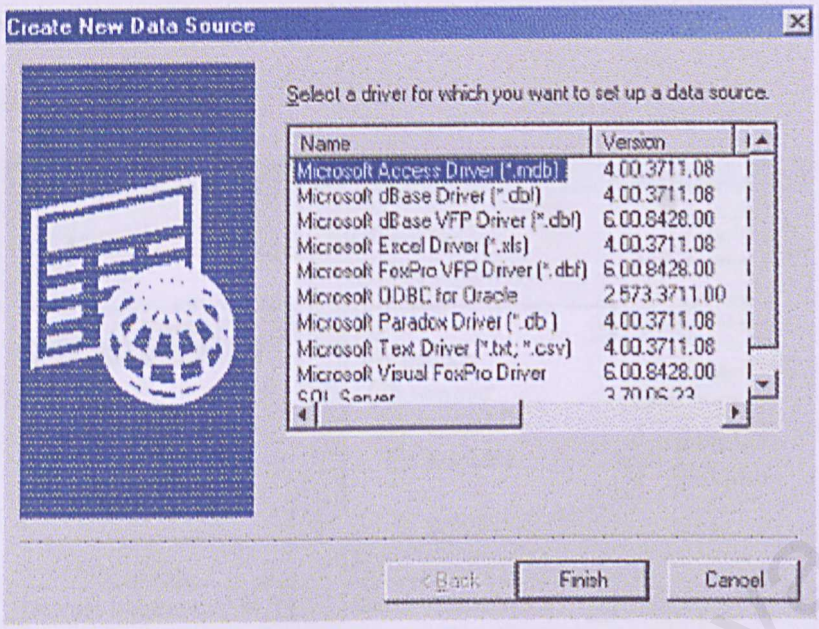

Figure 5

7) In the ODBC Microsoft Access Setup dialog box, shown in Figure 6 , type **V_nuzdb** in the Data Source Name field.

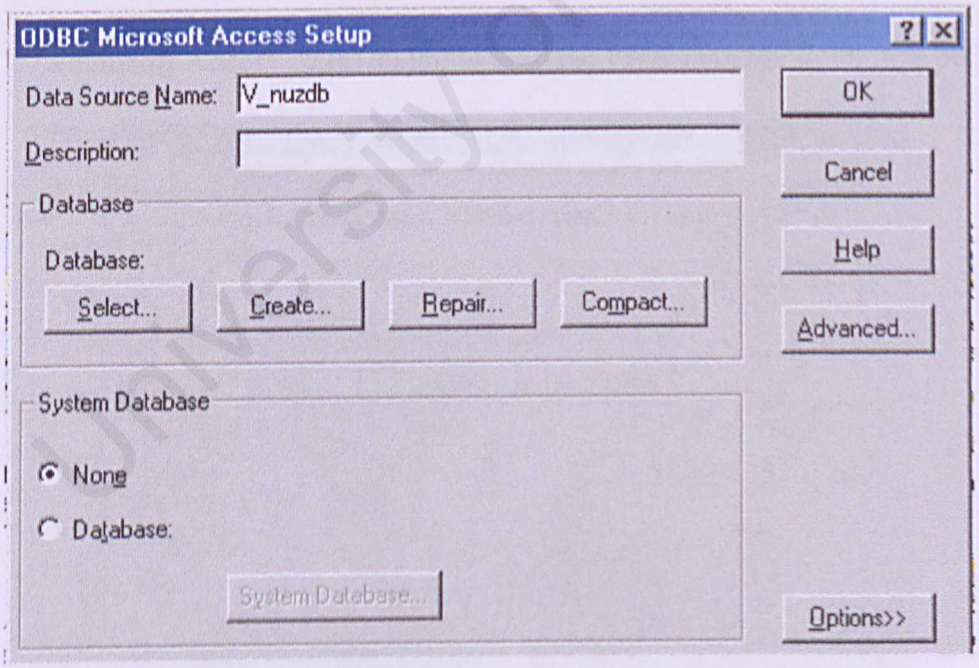

Figure 6

8) In the Database panel of the ODBC Microsoft Access Setup dialog box, click the select button.

9) Navigate to the C:\InetPub\wwwroot\V_nuz\database\V-nuz.mdb file and click OK.(Figure 7)

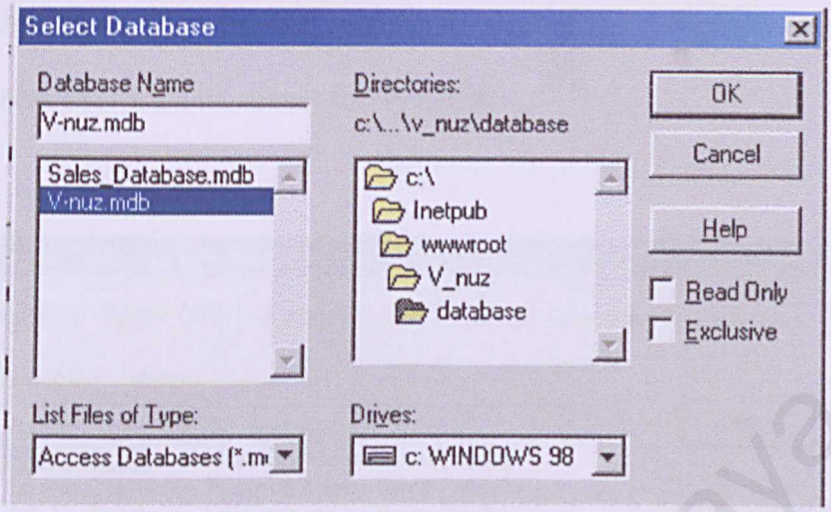

Figure 7

10) Click the Options button located in the lower-right corner of the ODBC Microsoft Access Setup dialog box. In the Page Timeout field, type 5000.

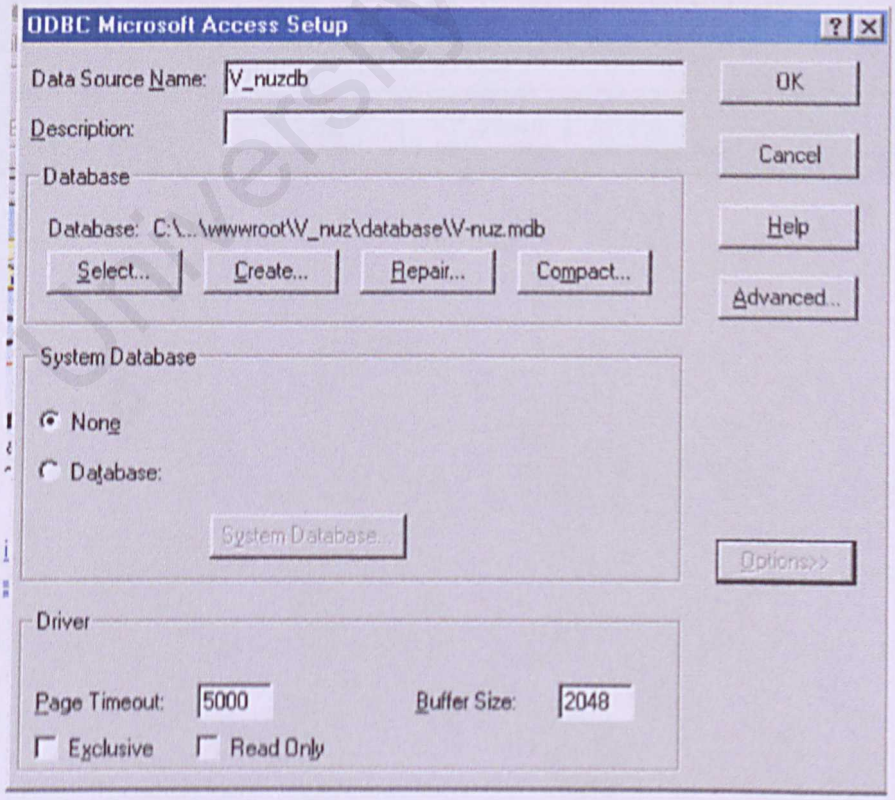

Figure 8

11) Click OK to close the ODBC Microsoft Access Setup dialog box.

12) As shown in Figure: 9, the ODBC Data Source Administrator dialog box now shows a data source for V_nuzdb.

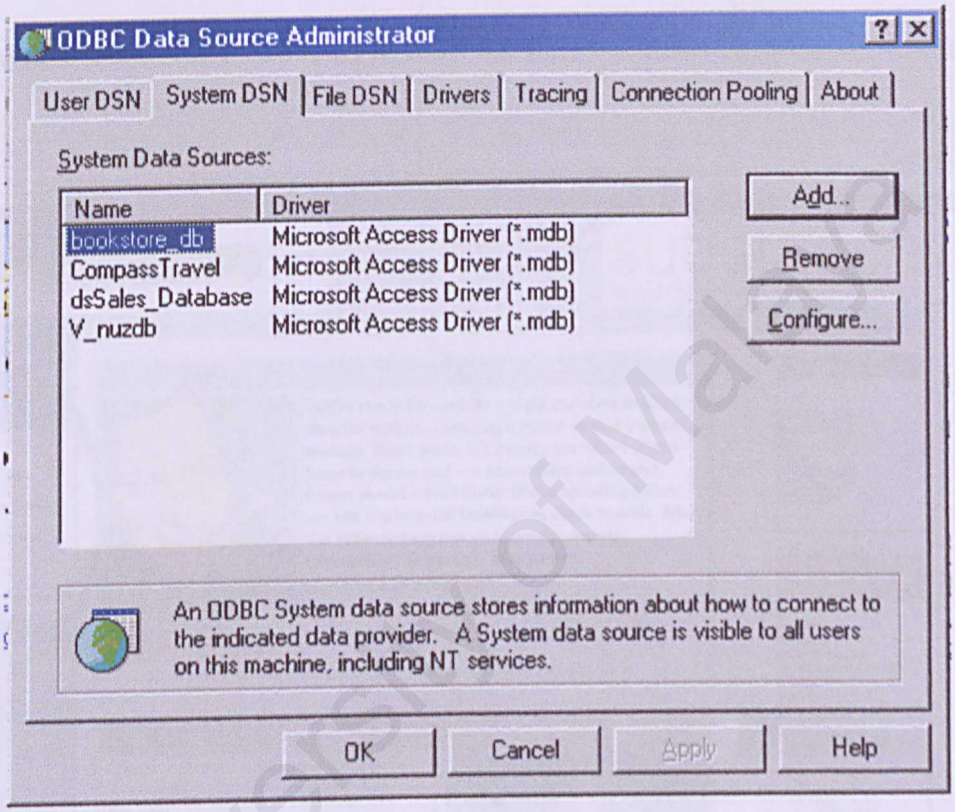

Figure 9

6.0) Navigating the V-Nuz.com Web Site

1) Open your browser. In the address bar, type http://localhost/V_nuz/default.asp or just click the link. Now u can view the V-Nuz.com default page.(Figure 6.1)

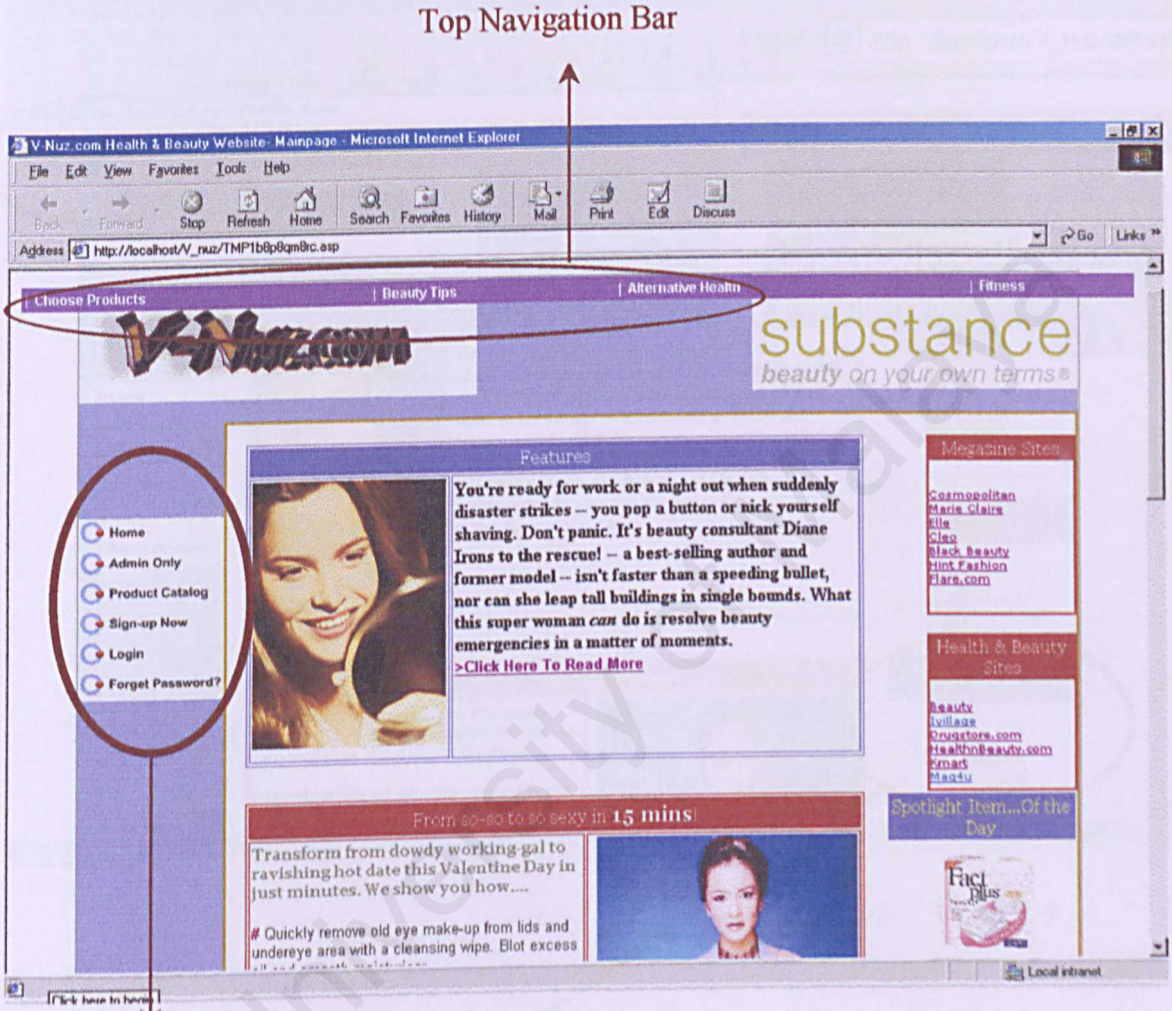

Figure 6.1

2) To navigate the web site, use the left navigation bar or the top navigation bar. Left navigation bar provide links to Home, Administrative Site, Search catalog, New user Registration, login and search password. Top navigation bar links to related health & beauty article and product catalog.

3) To view the product catalog, just move your mouse over the top navigation bar, and choose the product from the link. This is illustrated in the figure 6.2.

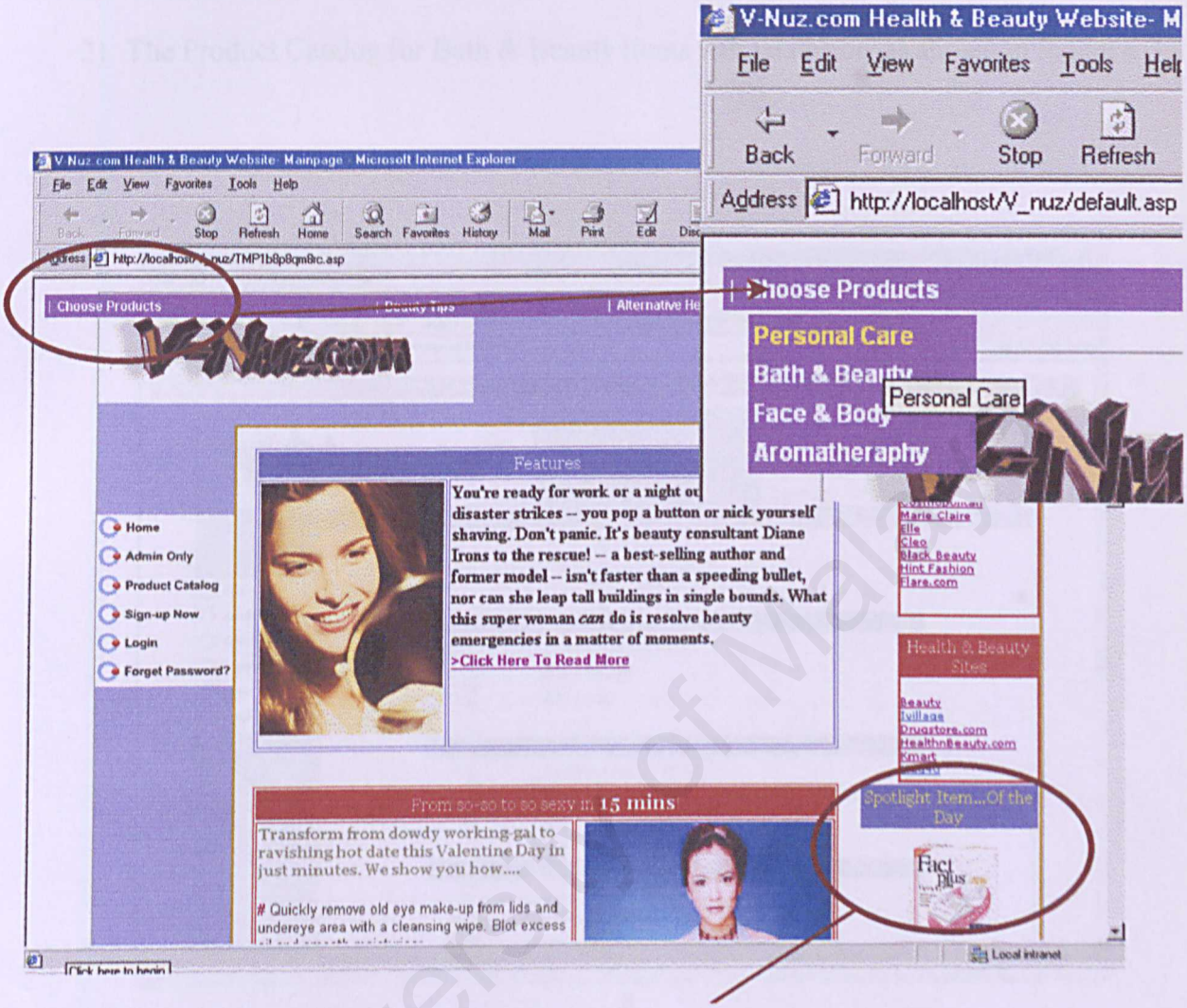

Figure 6.2

Every time the default.asp is refreshed, the product under the Spotlight Item will randomly change.

6.1) Viewing Product Catalog

1) Under Choose Product on the top navigation bar, click Bath & Beauty

2) The Product Catalog for Bath & Beauty items will be display as shown in Figure 6.3:

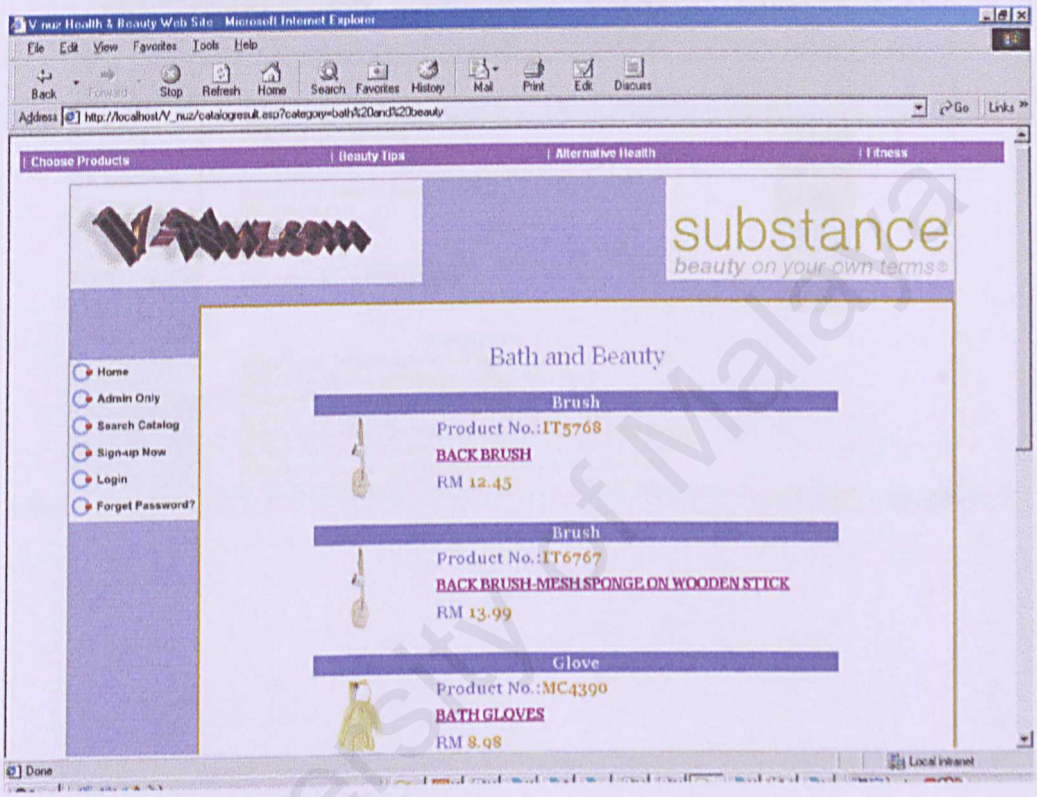

Figure 6.3

3) Click the product name link. This will display the detail page for the specific product as shown in the figure 6.4 below

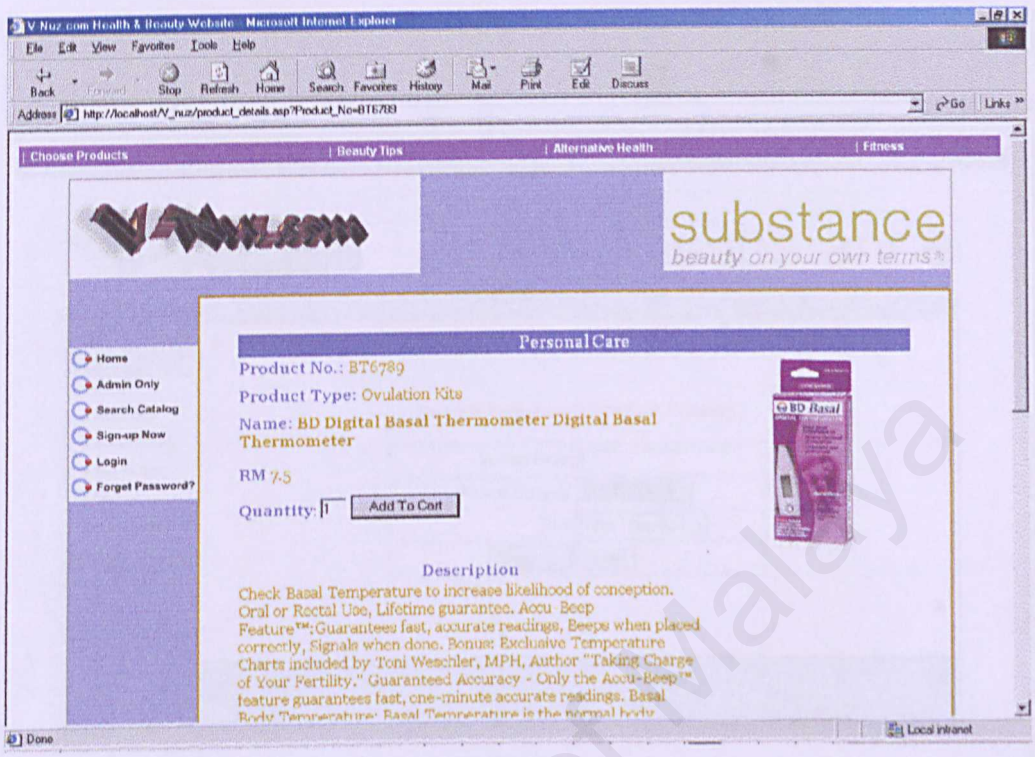

Figure 6.4

6.2) Advance Search Capabilities

1) Click the search catalog link on the left side of the page. As shown in Figure:6.5 , the catalog search will be display.

2) Leave the form with its default settings and click the Search button. This will return every record in the database.

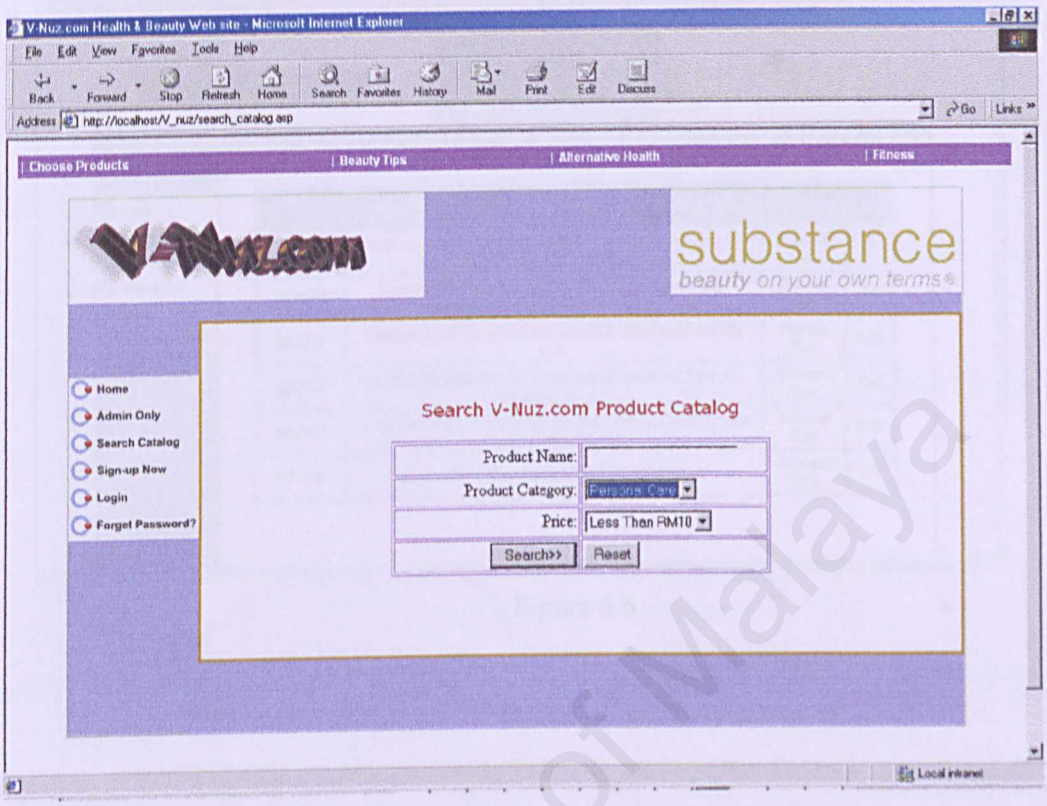

Figure 6.5

3) Click Back to return to the form.

4) Under Product Category, choose personal care. For Price, select Less Than RM10. Click the Search button. As shown in Figure 6.6 , the results have been filtered and only Personal Care Items under RM10 are returned.

5) Click the Product Name link to go to the detail page.

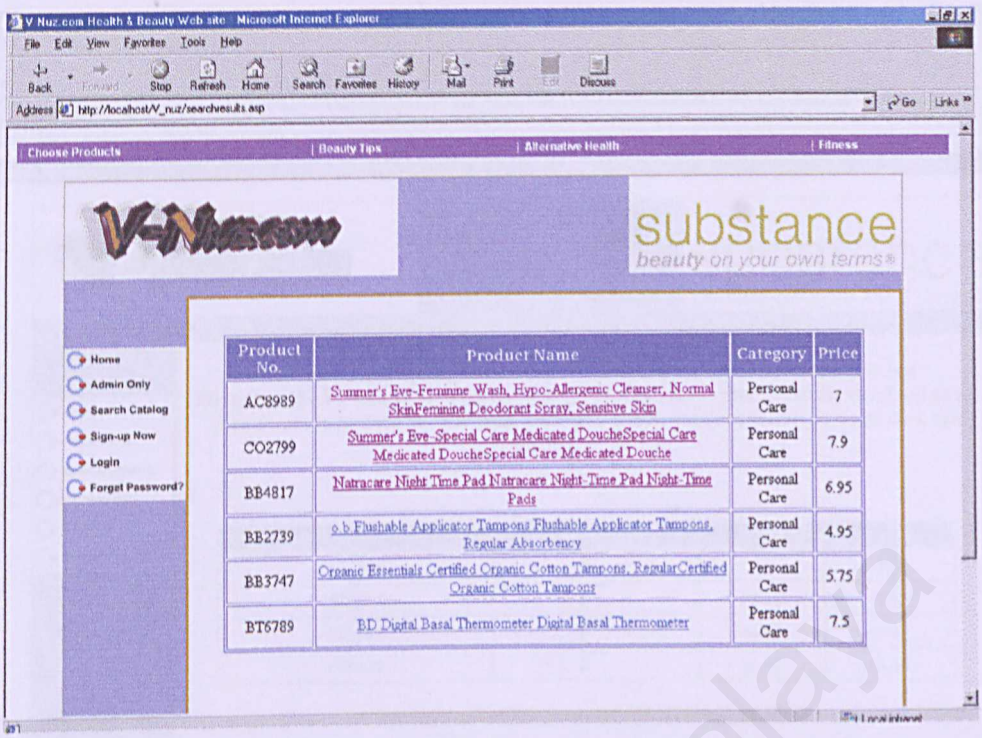

Figure 6.6

6.3) Shopping Cart Functionality

1) In the Detail page, under the Quantity field type 2. Press the Add to Cart button. As shown in Figure: 6.7 , the user shopping cart now reflects the added items.
2) In the Quantity field, type 1 and click the Update Cart button. The page automatically refreshes and one of the items is removed from the cart.
3) Add a few more products to the shopping cart.
4) In the View Cart page, click the Checkout link.

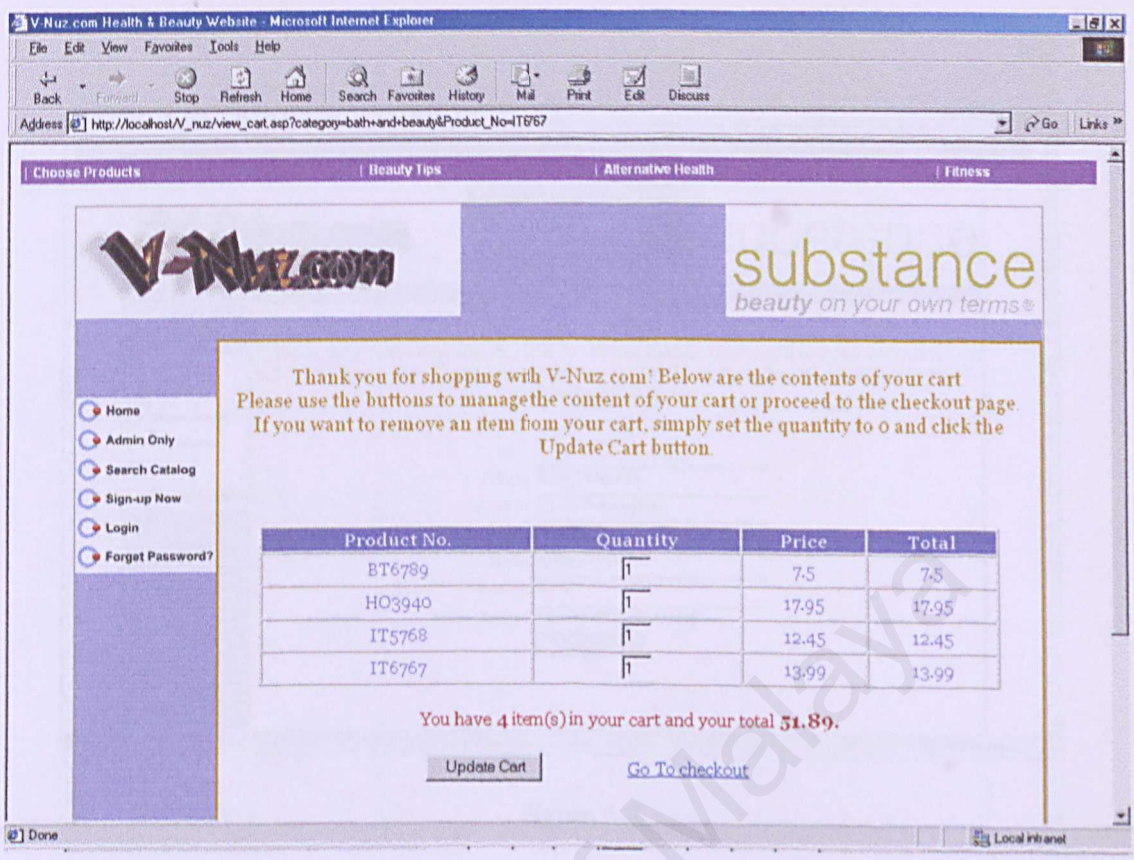

Figure 6.7

5) If the user haven't login or is not a registered customer, user is require to login first before continuing with the transaction.

6) User are taken to the first step in placing the order and asked to confirm the shipping information that is stored in the V-Nuz database.

7) Click the Next step button.(Figure 6.8)

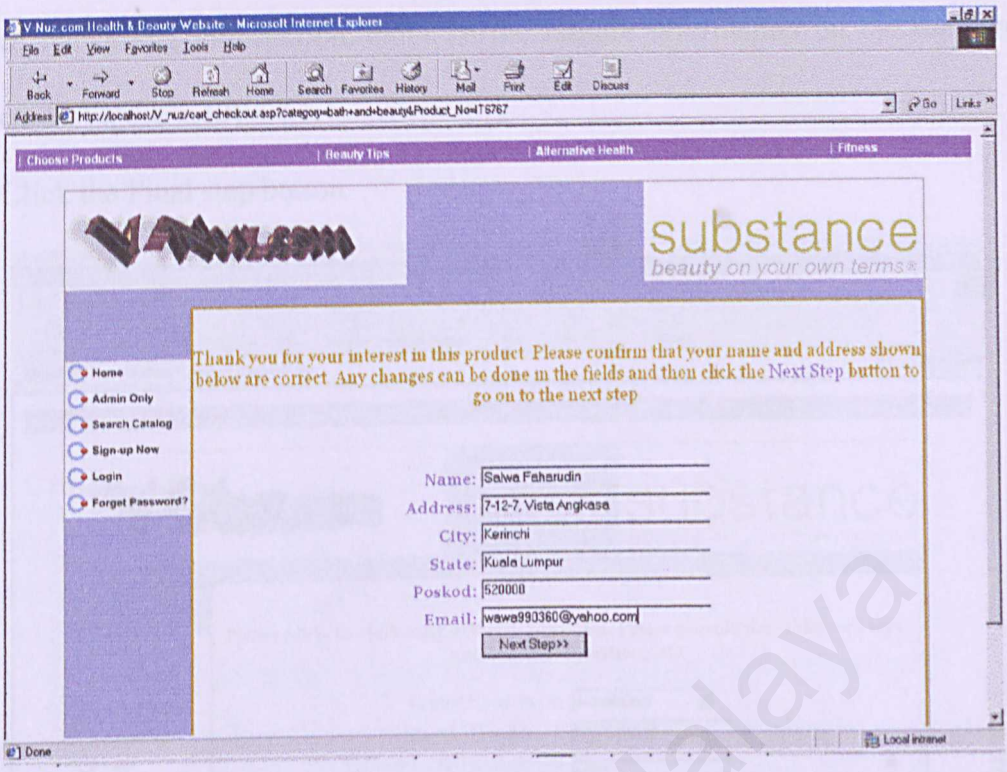

Figure 6.8

8) Choose the shipping method from the Shipping Type drop-down menu. Click the Next button.(Figure 6.9)

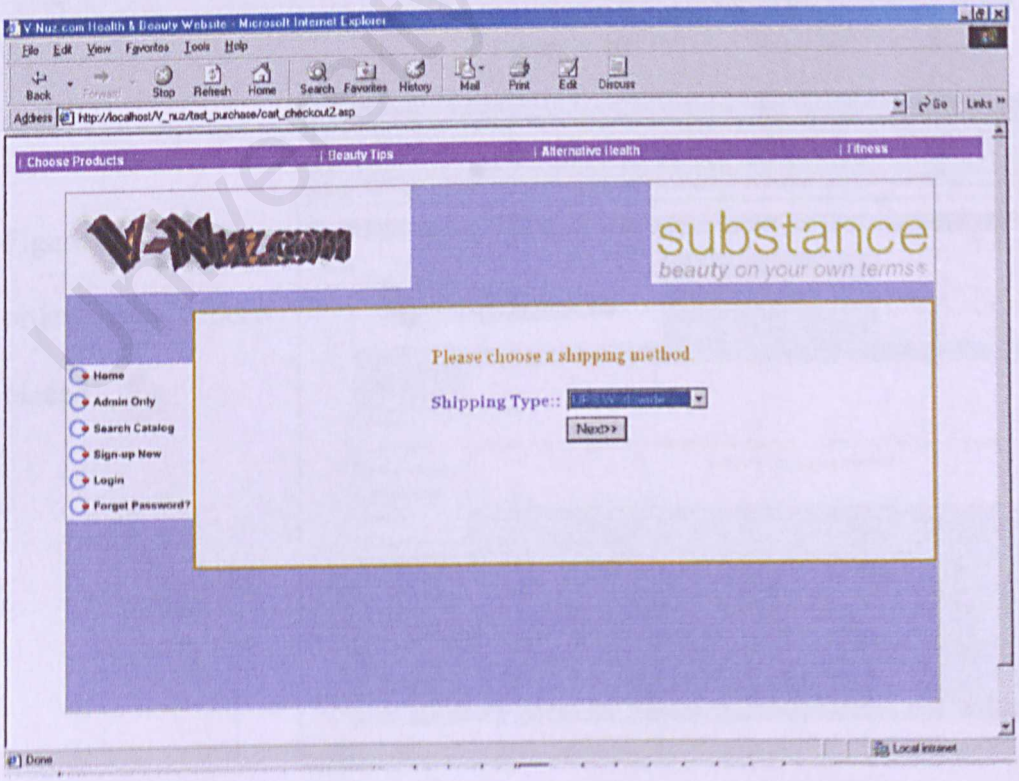

Figure 6.9

9) In the billing information, enter all the require information on the user credit card. (Figure 6.10)

10) Click the Final step button.

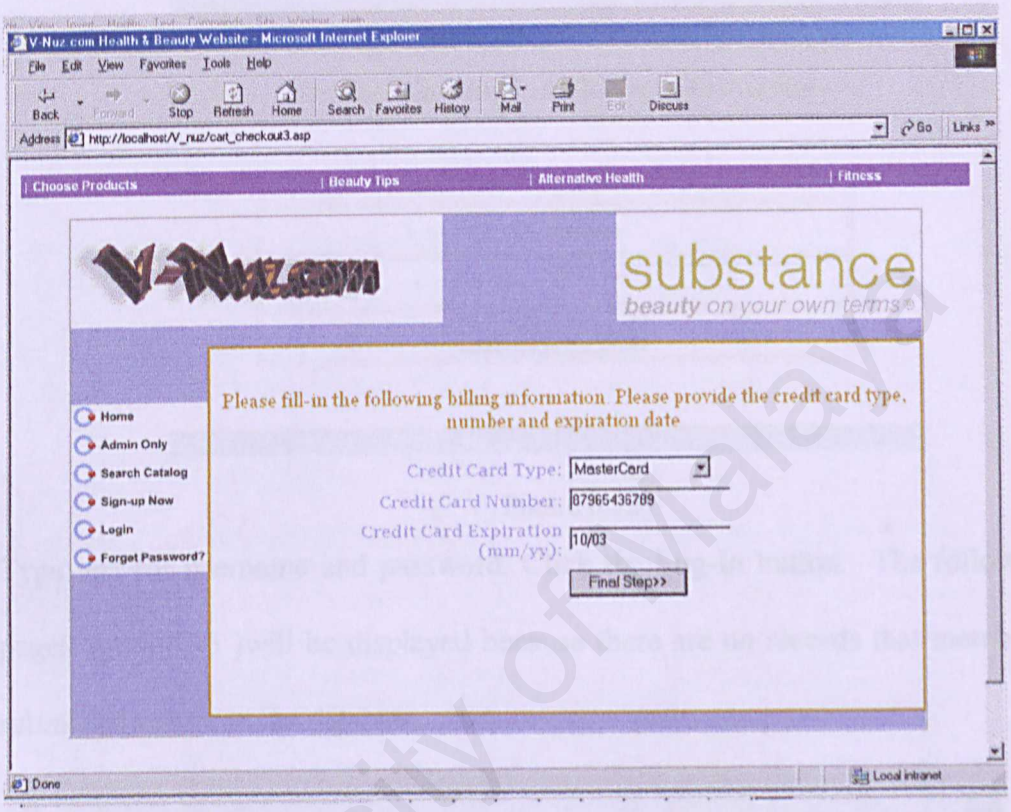

Figure 6.10

11) As shown in Figure:6.11 ,user order has been placed.

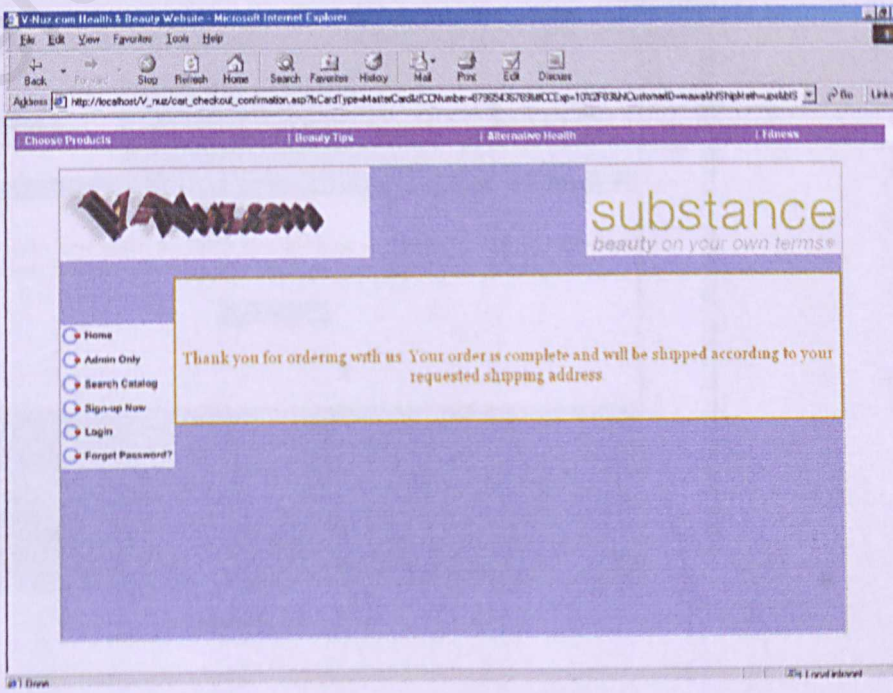

Figure 6.11

6.4) Login Functionality

1) Click the login link on the left side of the page. As shown in Figure:6.12 the login form will be display.

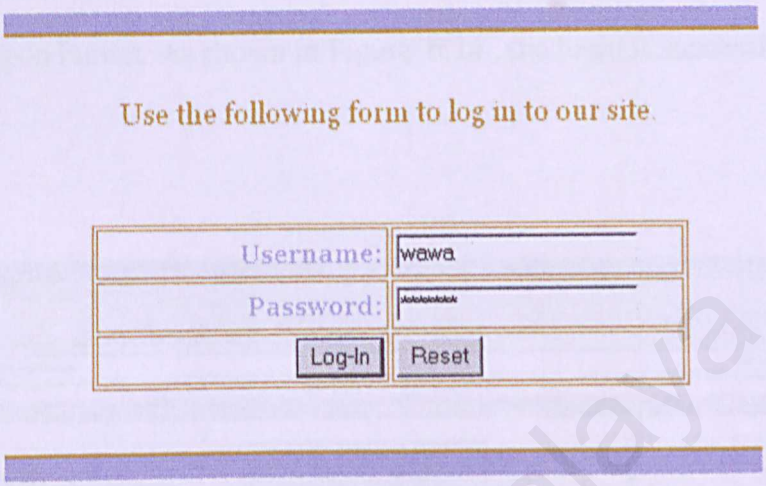

Figure 6.12

2) Type test for username and password. Click the Log-In button. The following page(Figure:6.13)will be displayed because there are no records that match the submitted values in the database.

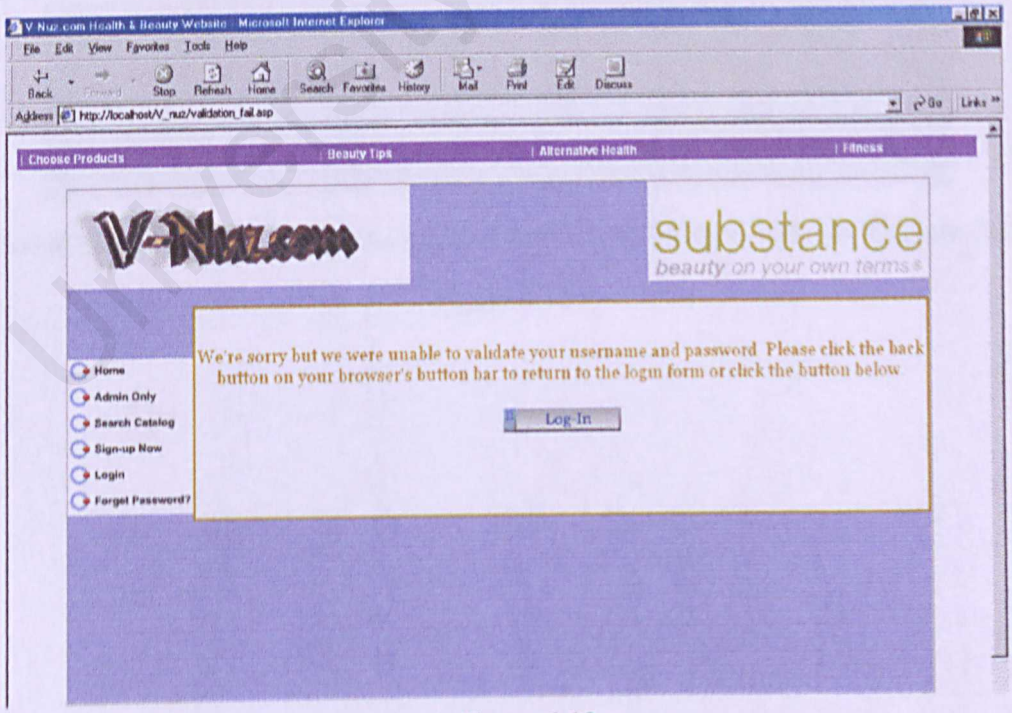

Figure 6.13

3) Click the Log-In button.

4) In the Username field type, **wawa**.

5) In the Password field type, **wfn6666**.

6) Click the Log-In button. As shown in Figure: 6.14 , the login is successful.

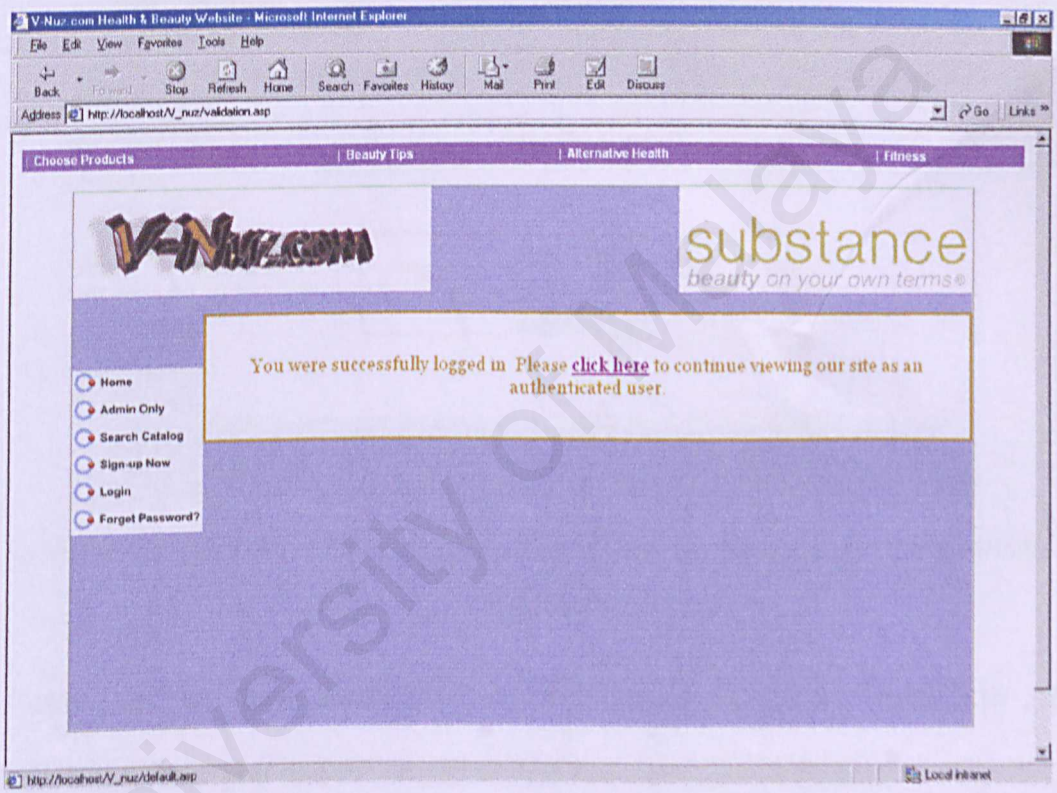

Figure 6.14

6.5) Password Lookup

1) Click the forget password link on the left side of the page. As shown in Figure:6.15 the password lookup page will be display.

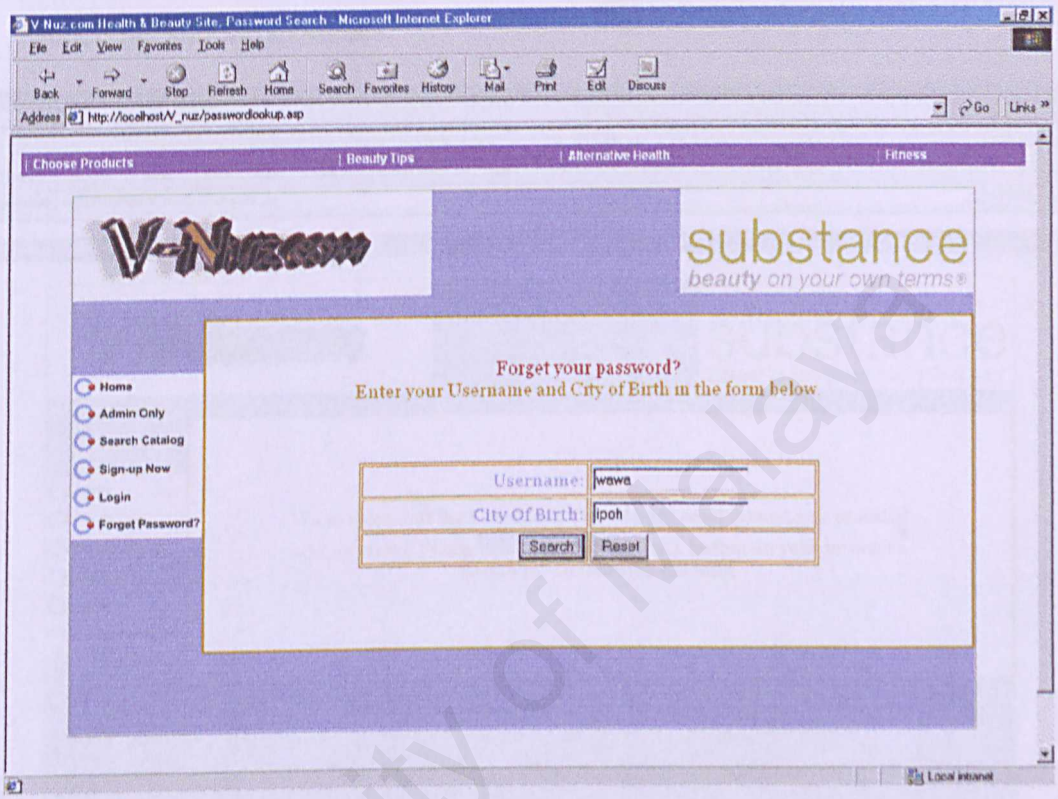

Figure 6.15

2) Leave the text field blank and click the Search button. In Figure:6.16 , the browser alerts you that the required field have not been completed.

3) Click OK to close the alert box.

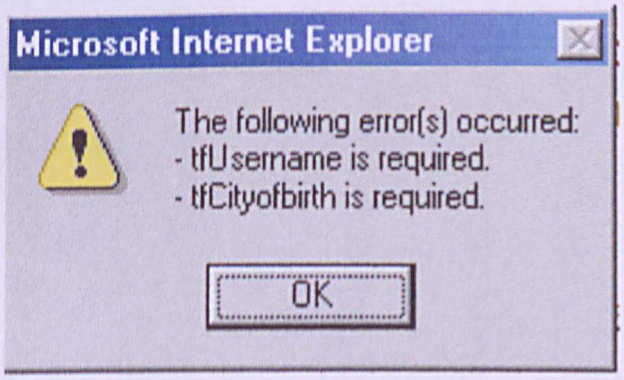

Figure 6.16

4) In the Username field, type tester.

5) In the City of Birth field type, nowhere.

6) The following page(Figure6.17) will be display because there are no records that match the submitted values.

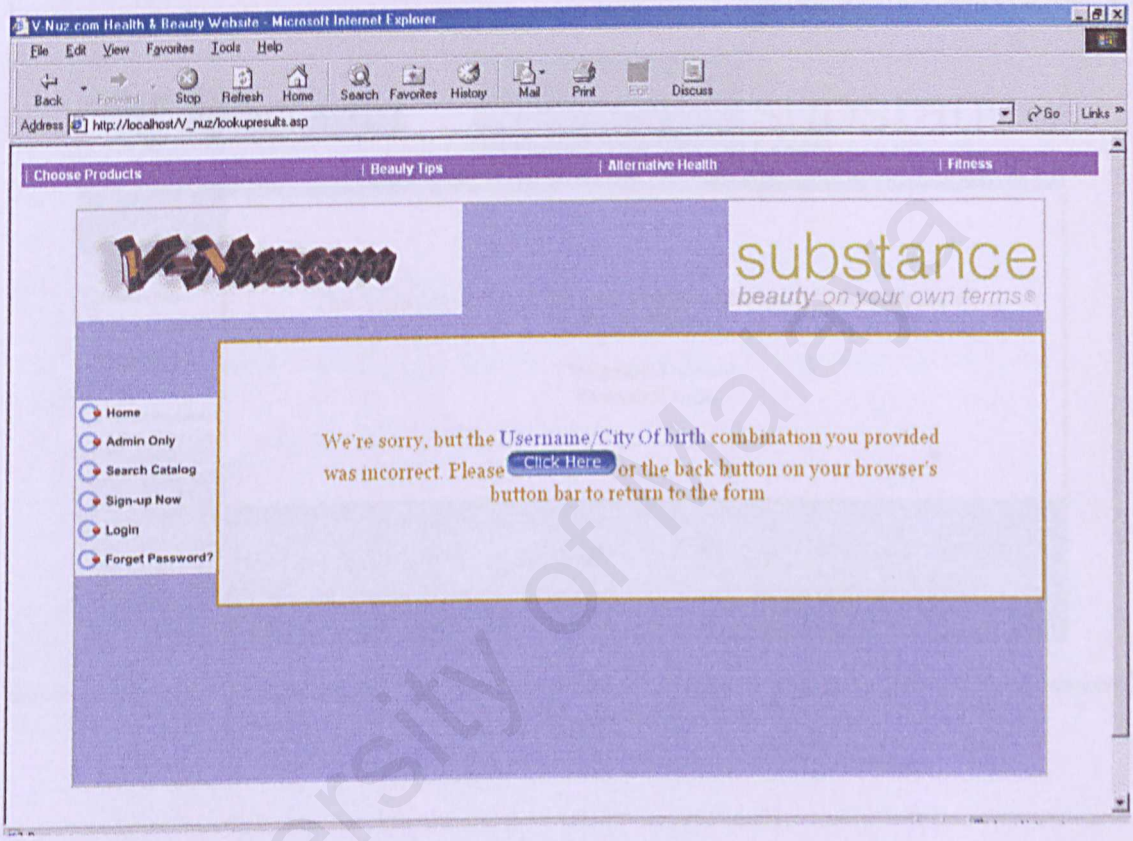

Figure 6.17

7) Click the Click Here button.

8) In the Username field of the password lookup page, type **testuser**.

9) In the City of Birth field type, **bangsar**.

10) Click the Search button.

11) As shown in Figure: 6.18,the password is displayed because the username/city of birth combination was correct.

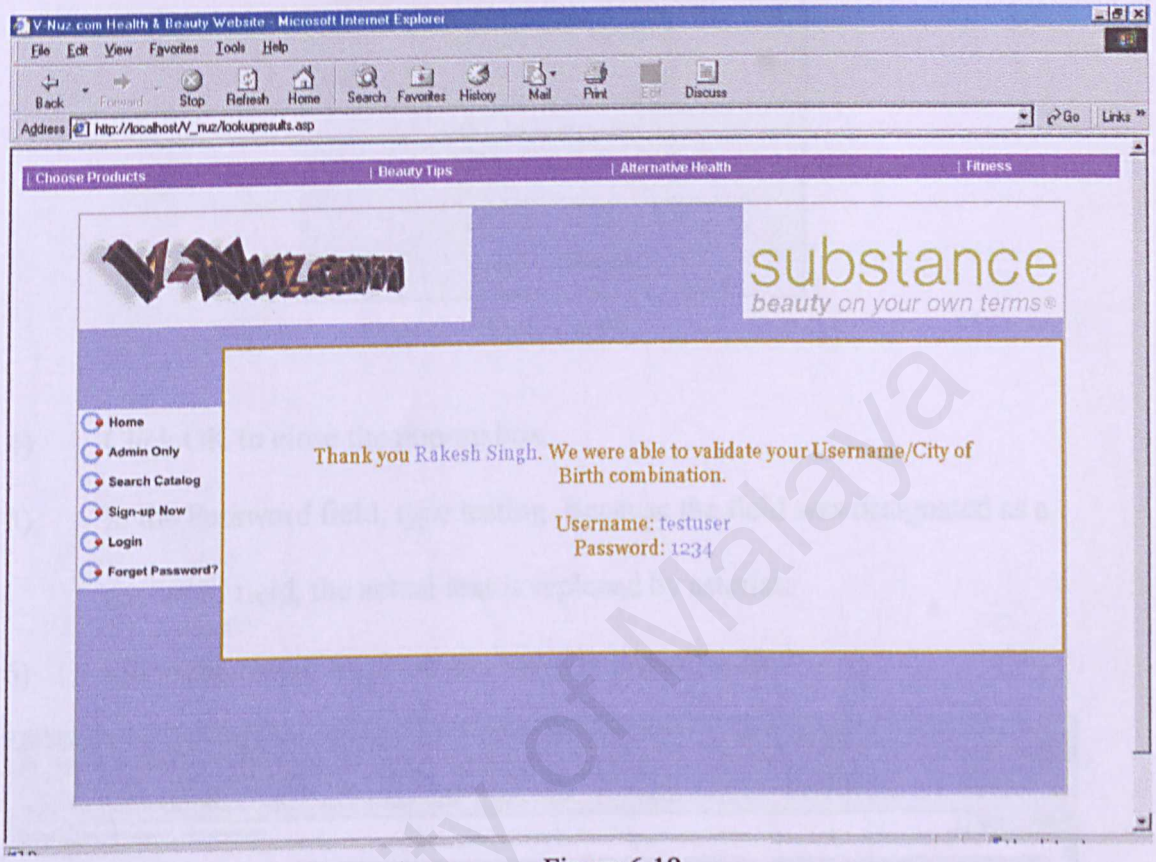

Figure 6.18

6.6) New User Registration

1) Click the Sign-Up Now link on the left navigation bar.

2) In Username field, type **testing**.

3) Click the Submit button. Because all the required fields have not been completed, a pop-up message, shown in Figure: 6.19,lets user know that the user need to finish filling out all the fields in the New User Registration form.

Figure 6.19

4) Click OK to close the pop-up box.

5) In the Password field, type testing. Because the field was designated as a password field, the actual text is replaced by asterisk.

6) Fill in the rest of the form as shown in Figure: 6.20 .

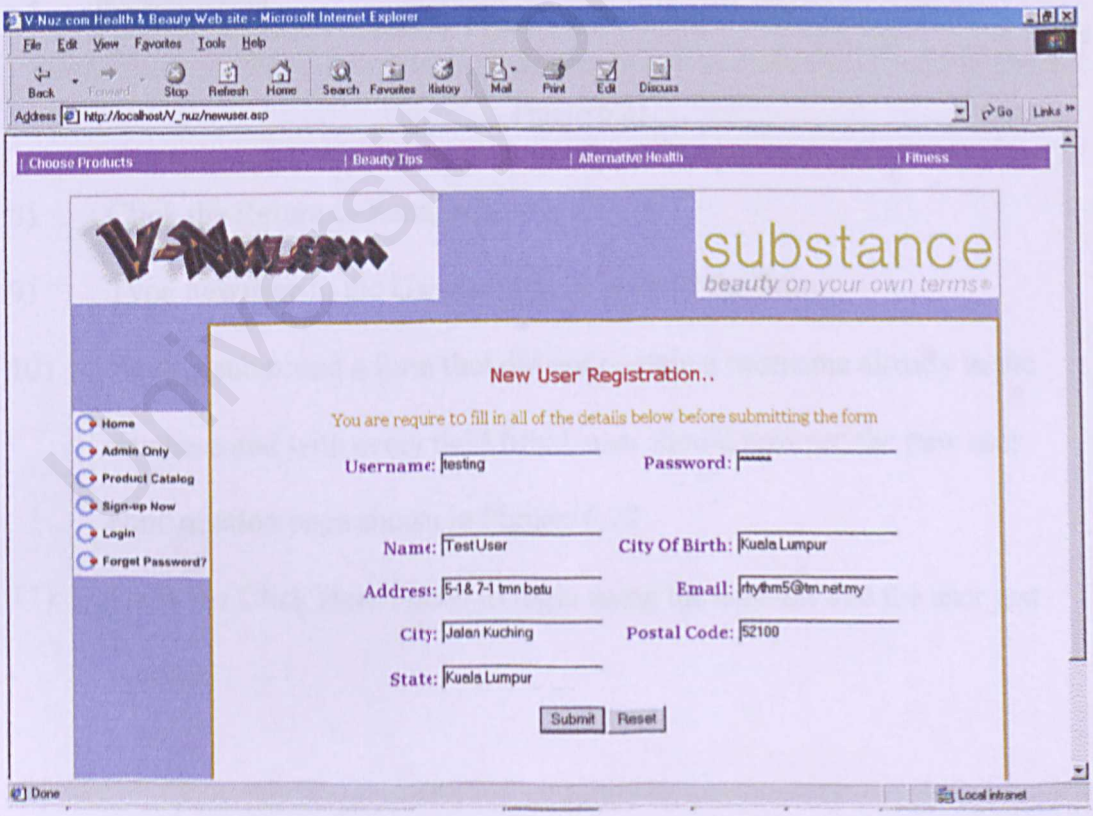

Figure 6.20

7) Click the Submit button. The testing username had already contain in the database, so user will be direct to the following page.(Figure: 6.21)

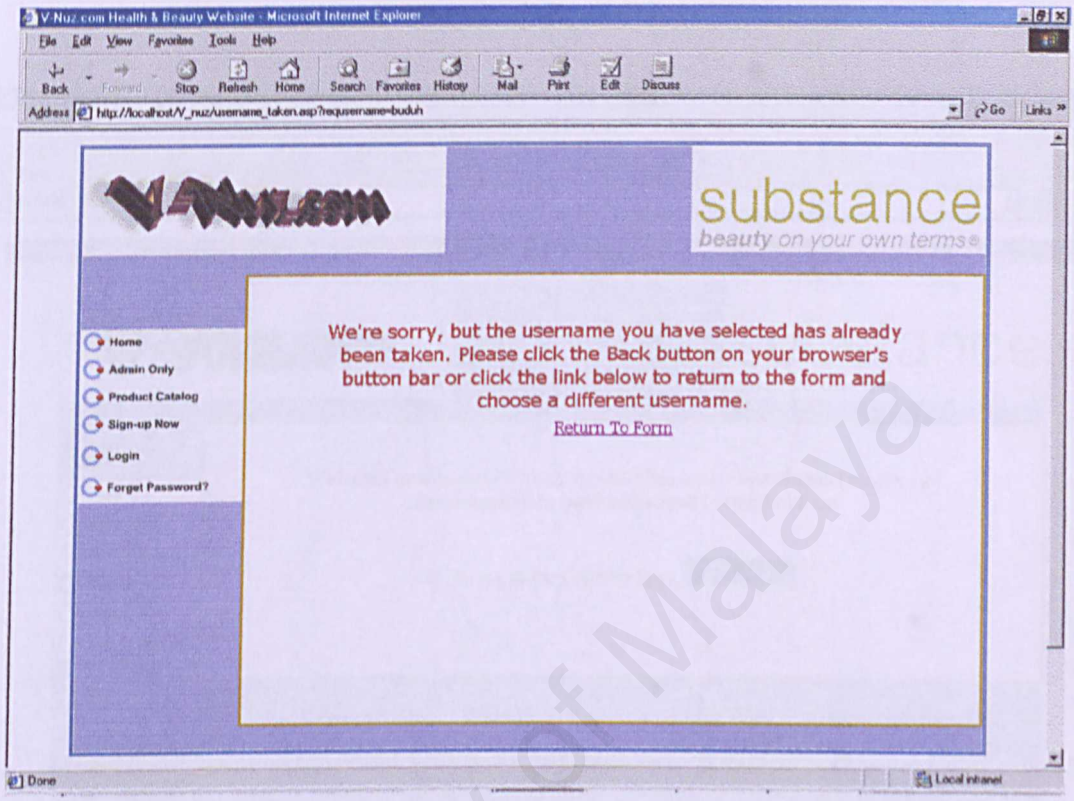

Figure 6.21

8) Click the Return to Form link.

9) Type **newuser** in the Username field. Submit the form.

10) Having submitted a form that did not contain a username already in the database and with every field filled, user should now see the new user confirmation page shown in Figure: 6.22.

11) Click the Click Here button to login using the account that the user just created.

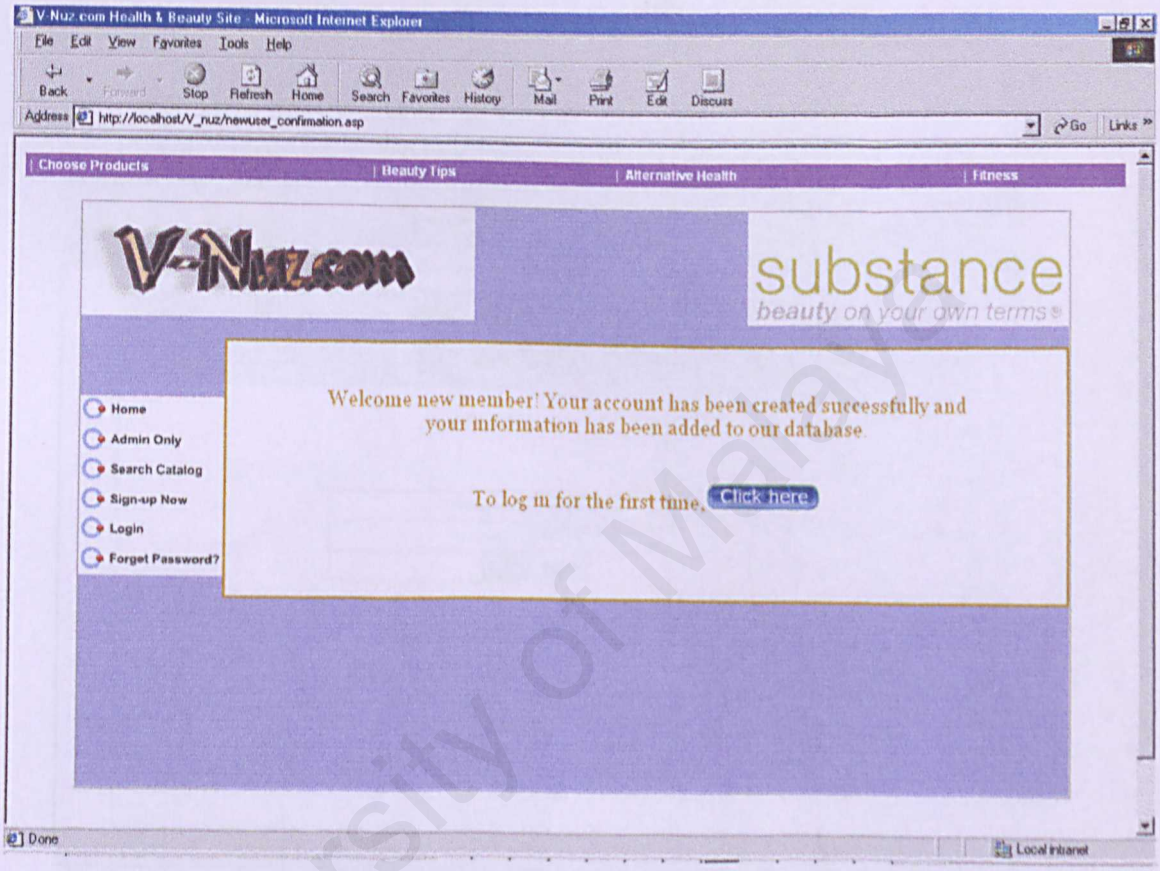

Figure 6.22

7.0) Administration Site

1) Open a browser window. In the address bar, type http://localhost/V_nuz/admin/default.asp or just click the link.

2) In the Username field type **nrfempburnsm** and type **smackdown** in the Password field.(Figure 7.1)

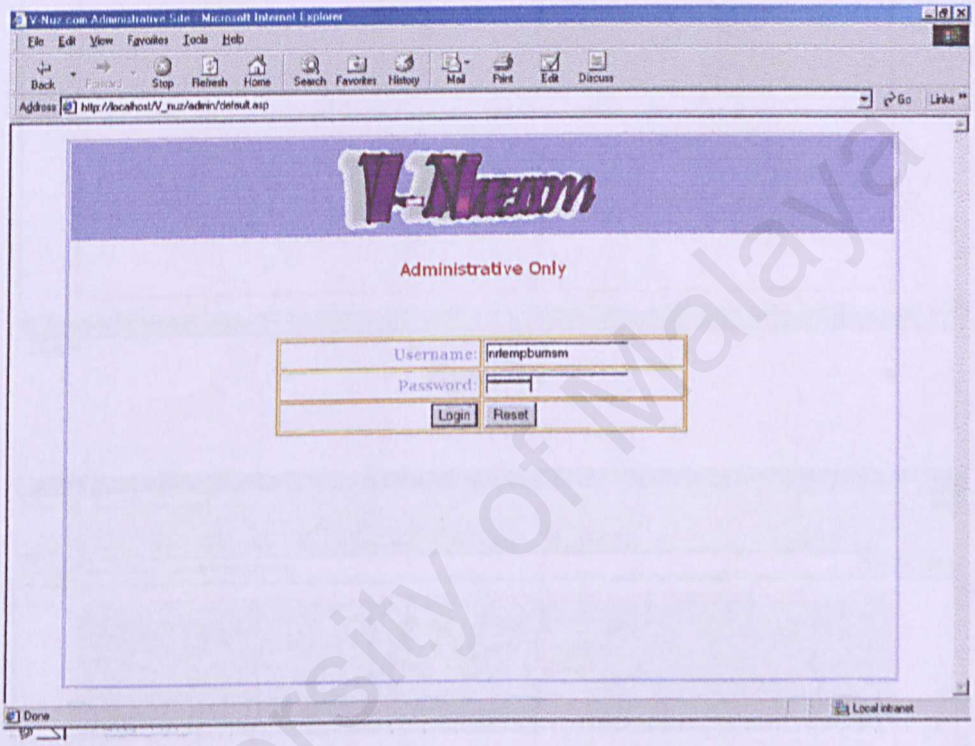

Figure 7.1

3) Click Login. As shown in Figure:7.2 , the username and password are valid so the login confirmation is displayed.

4) Click the link to continue to the main menu.

5) Form the main menu, click the Add Product button.(Figure 7.3)

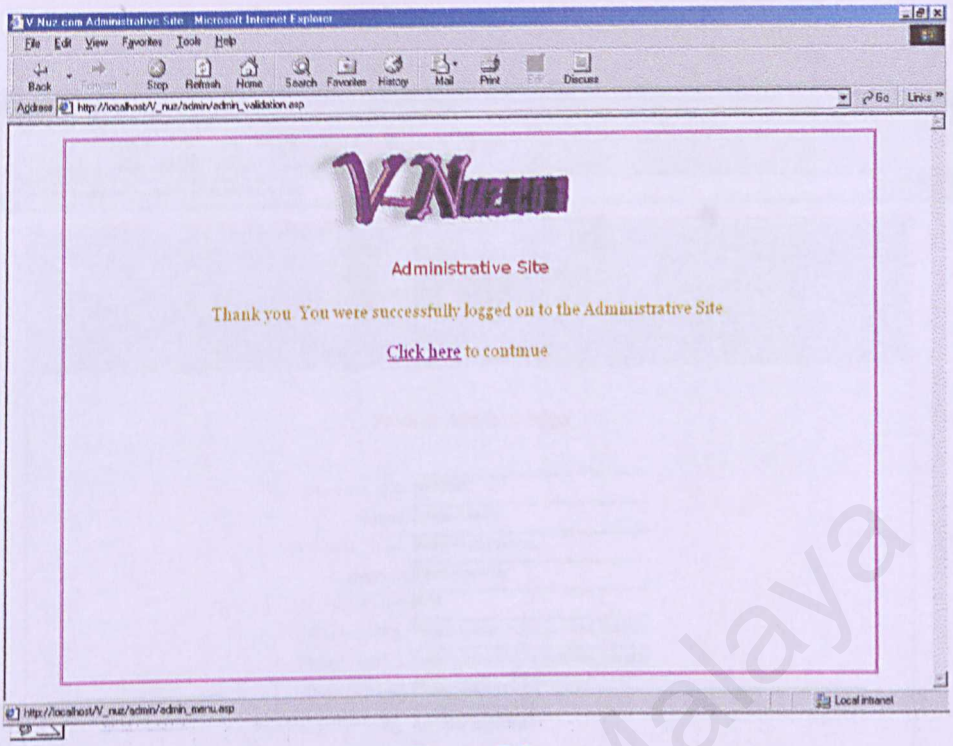

Figure 7.2

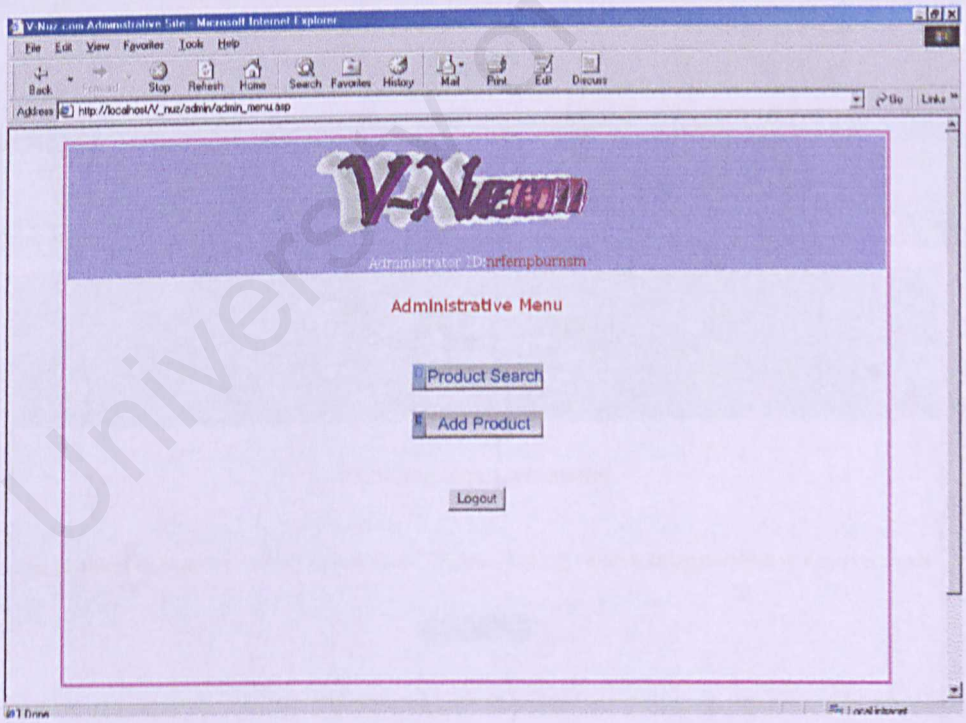

Figure 7.3

6) In the Product Addition Page , fill in the form as shown in Figure: 7.4,

7) Click the Insert Record button and a confirm page will be display.

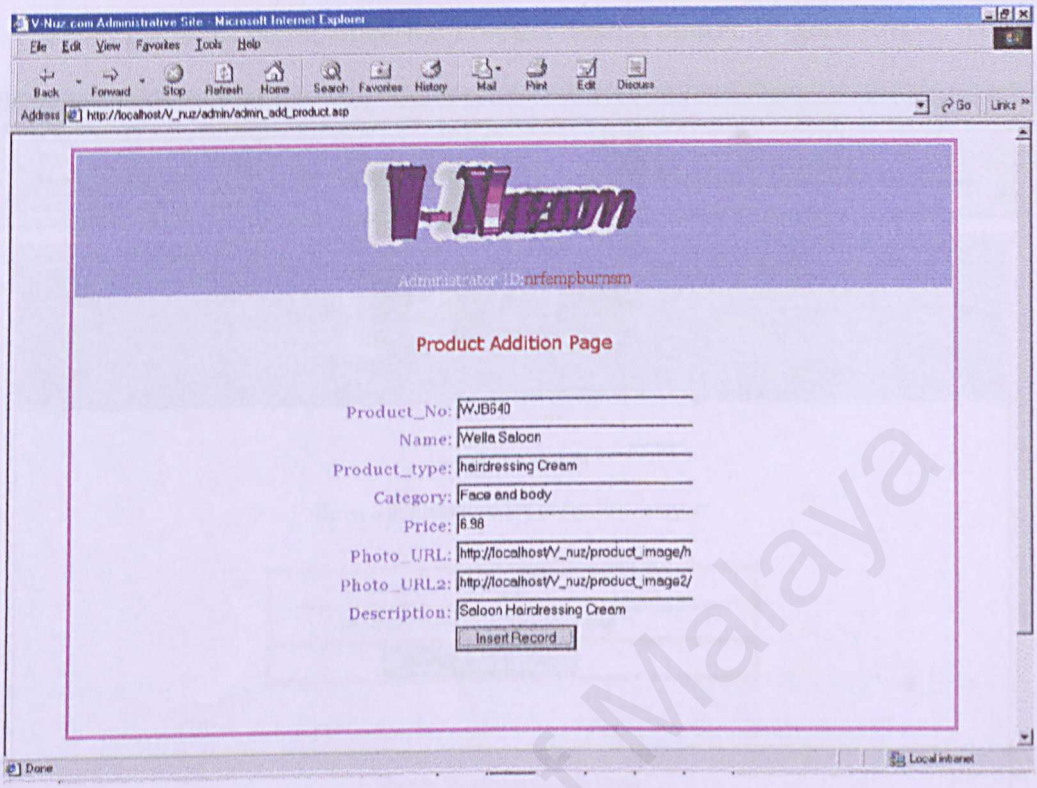

Figure 7.4

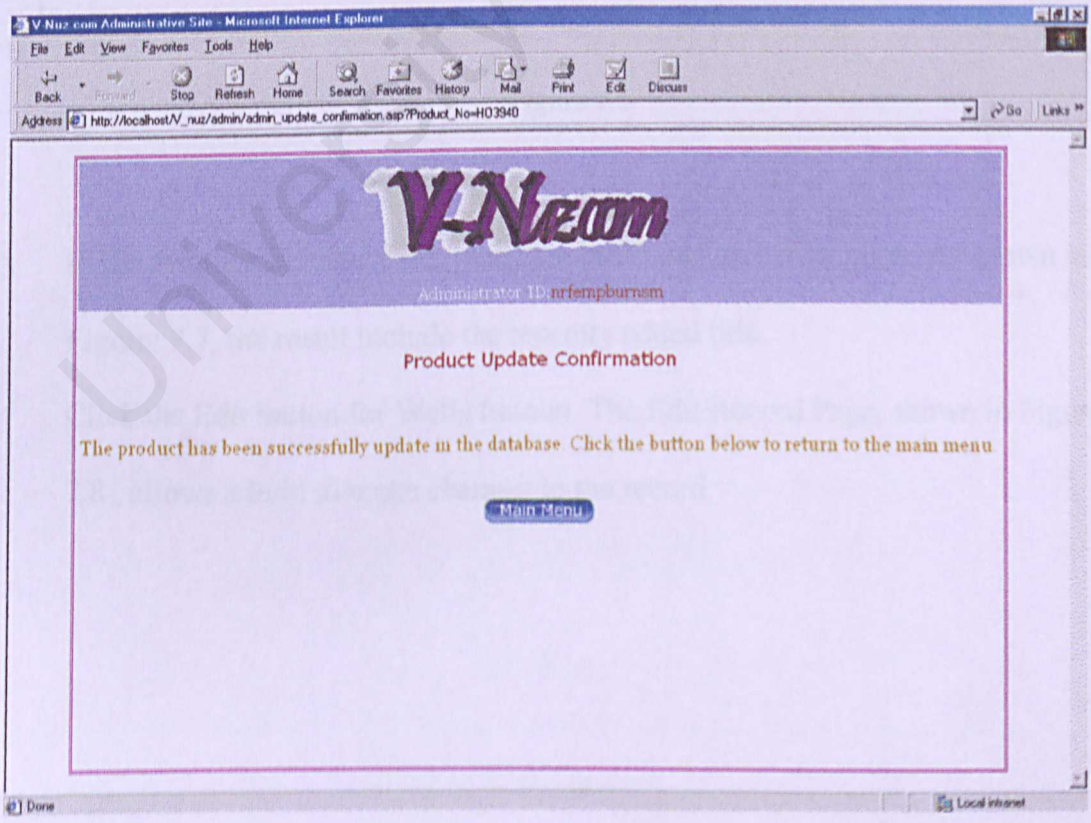

Figure 7.5

8) Click the Main Menu button to return to the main menu.

9) From the main menu, click the Product Search button. (Figure 7.6)

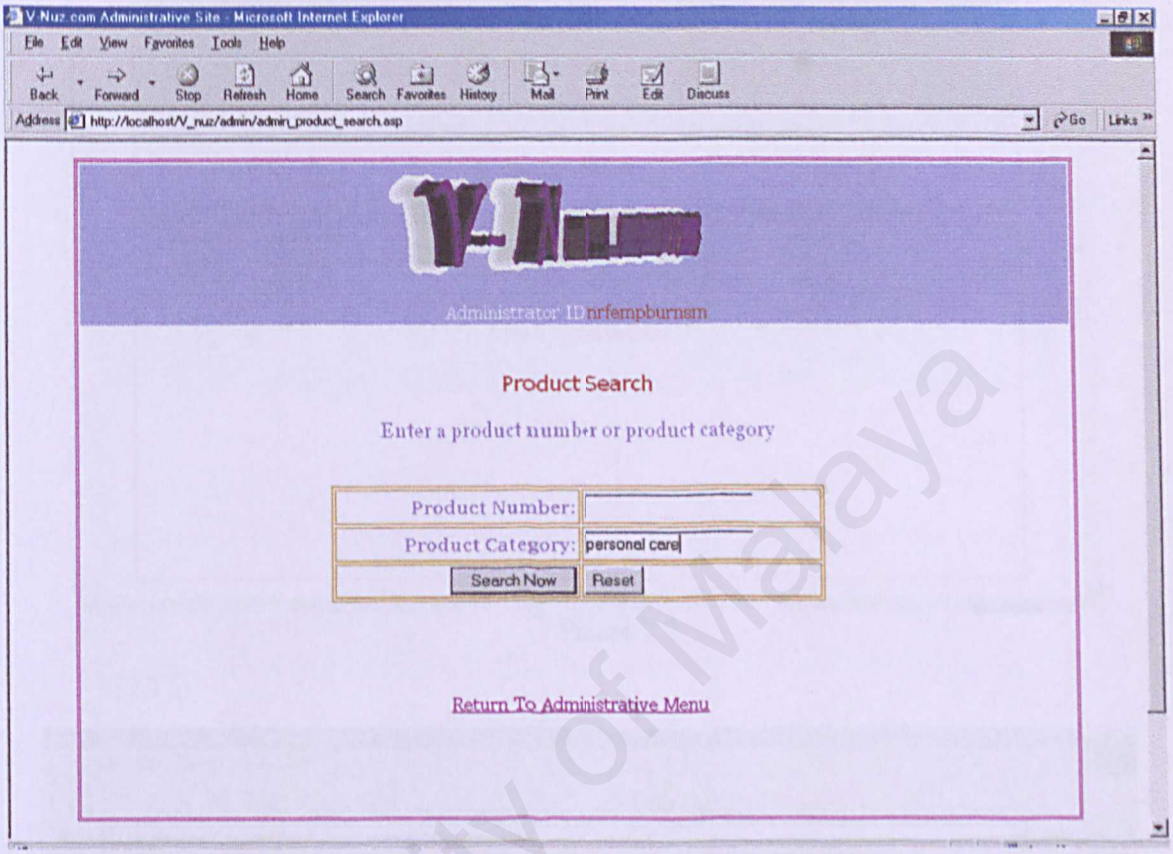

Figure 7.6

10) In the Product Number field, type **face and body** and click enter. As shown in Figure: 7.7, the result include the recently added title.

11) Click the Edit button for Wella Saloon. The Edit Record Page, shown in Figure 7.8 , allows admin to make changes to the record.

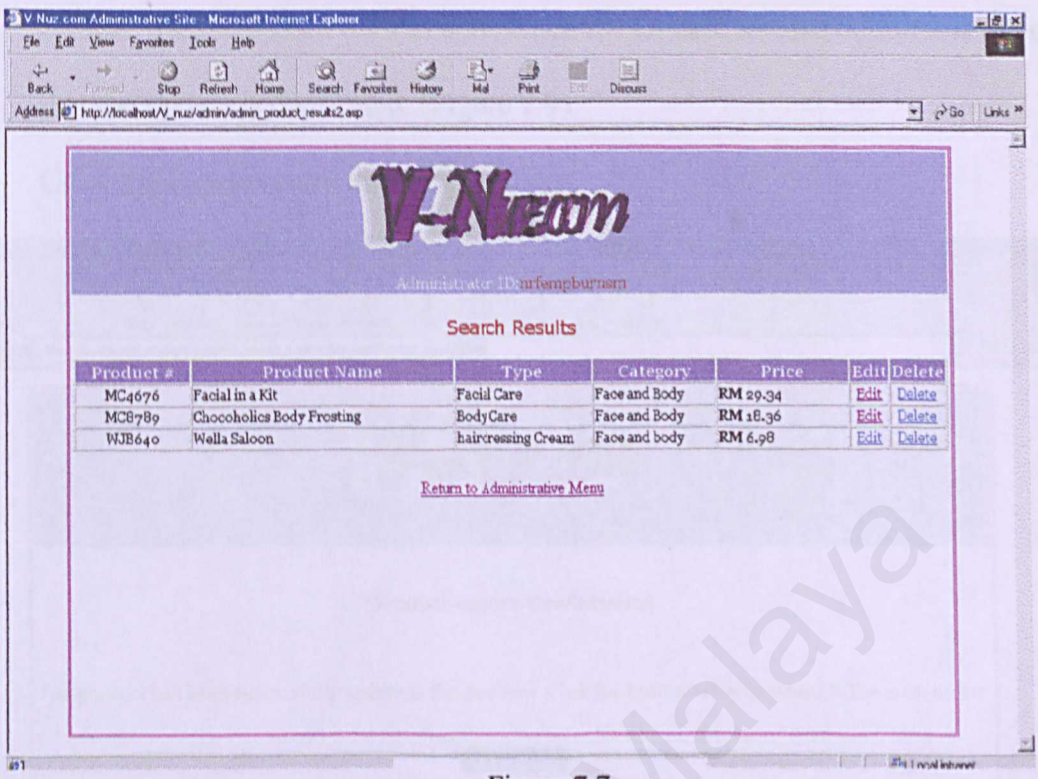

Figure 7.7

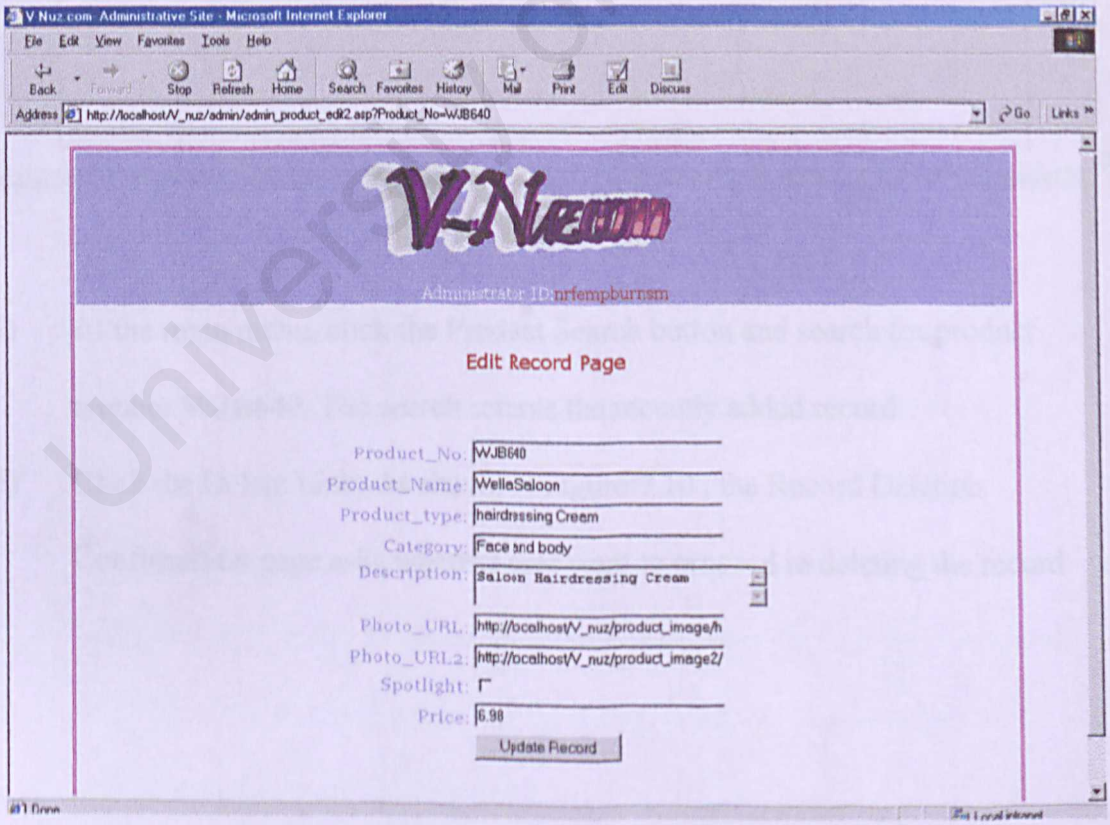

Figure 7.8

12) Change the price from 6.98 to 8.50. Click the Update Record button and notice that the update is confirmed. (Figure 7.9)

13) Click the link to return to the main menu.

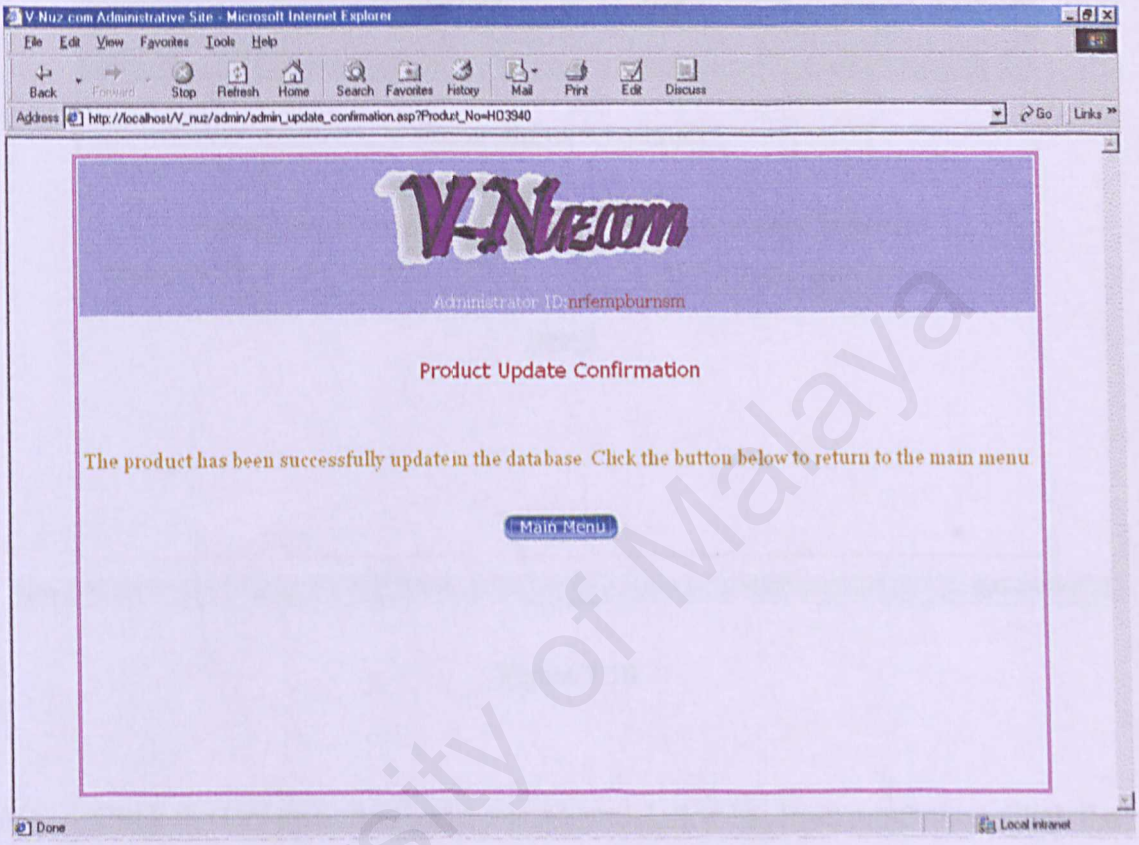

Figure 7.9

14) At the main menu, click the Product Search button and search for product number **WJB640**. The search returns the recently added record.

15) Click the Delete Link. As shown in Figure:7.10 , the Record Deletion Confirmation page asks whether user want to proceed in deleting the record.

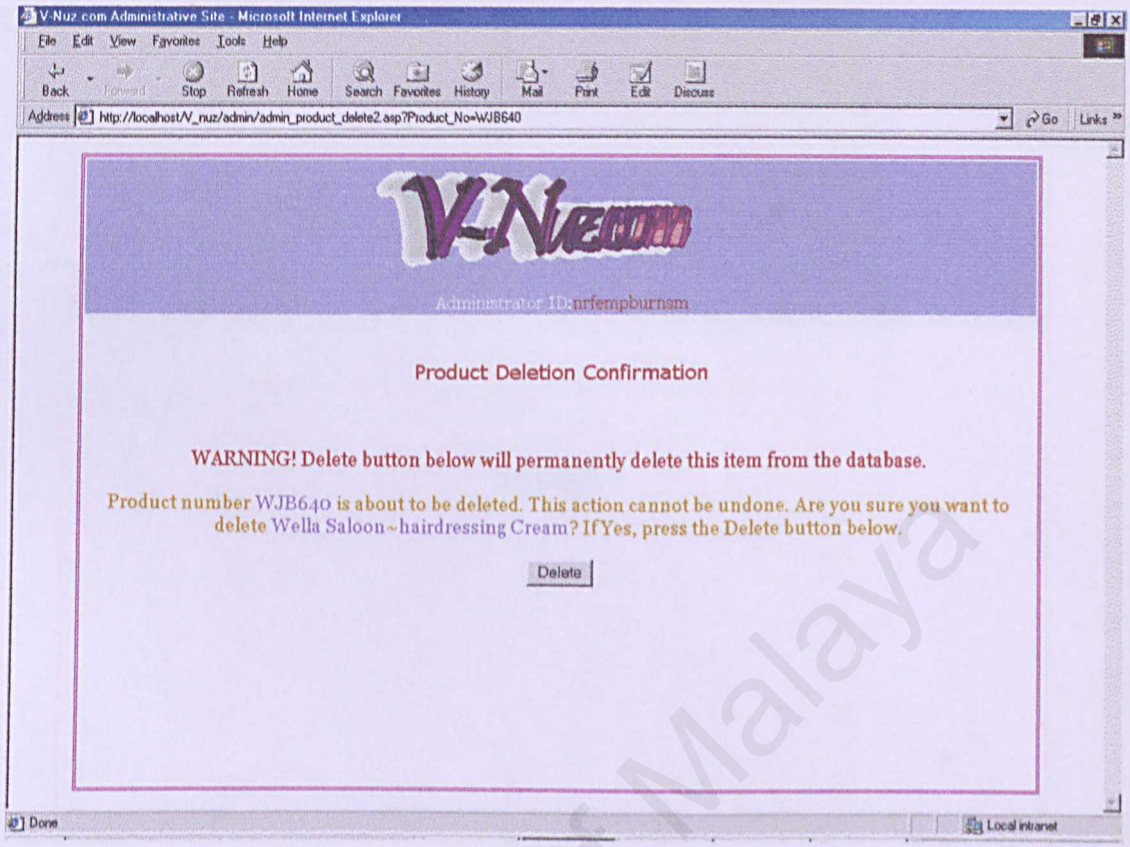

Figure 7.10

16) Click the Delete button and the product deletion has been confirmed. Click the link to return to the main menu.

17) Once again, click the Product Search button and search for face and body. Notice that the recently deleted product no longer appears in the search results.

18) Click the Return to Administrative Menu link.

19) Click the Logout button. The confirmation page successfully logs the user out.

20) Click the back button to return to the main menu and then click the Product Search button. The site automatically redirects user to the login page because the user session has expired.(Figure 7.11)

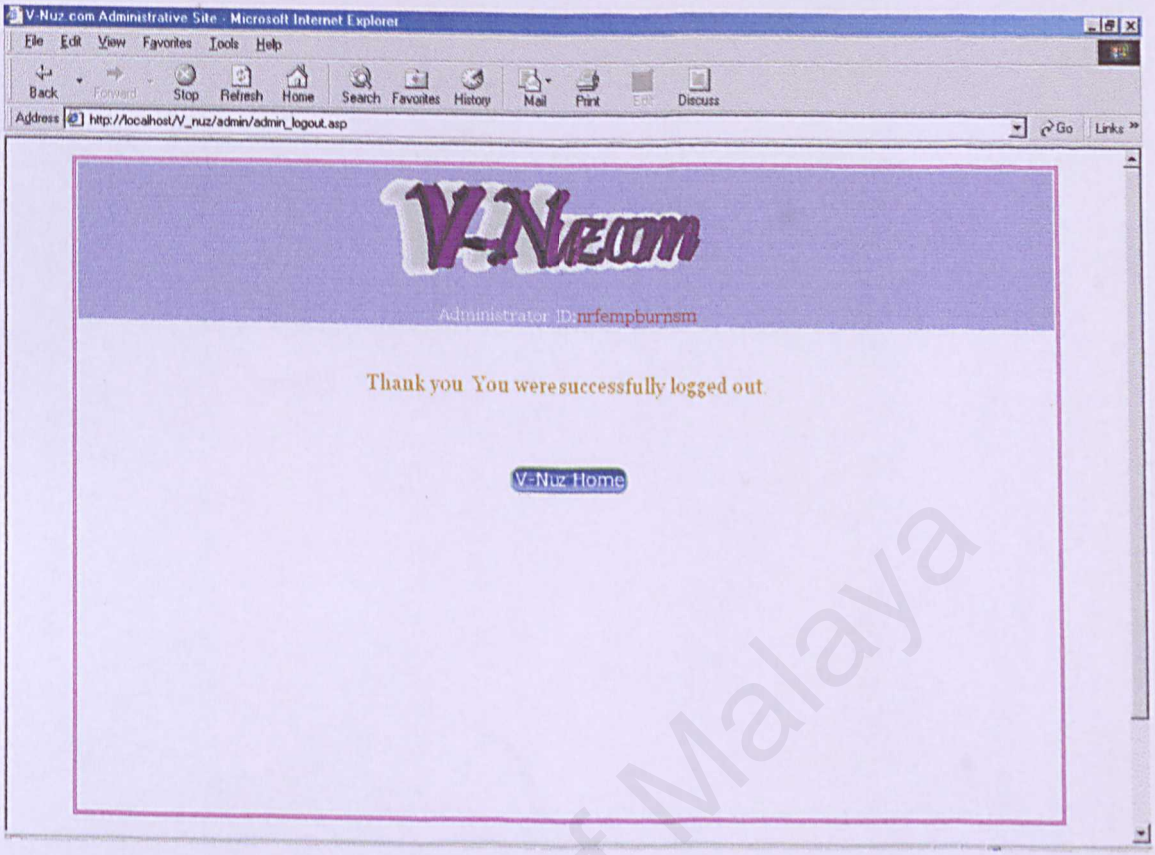

Figure 7.11

21) Click the V-Nuz Home button to return to the V-Nuz.com Web Site.